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ORCID logoORCID: <https://orcid.org/0000-0003-2973-8503> (2015) 'What works' in reducing  
sexual harassment and sexual offences on public transport nationally and internationally: a  
rapid evidence assessment. Project Report. Middlesex University; British Transport Police;  
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# **‘What Works’ in Reducing Sexual Harassment and Sexual Offences on Public Transport Nationally and Internationally: A Rapid Evidence Assessment**

**By Anna Gekoski, Jacqueline M. Gray, Miranda A.H. Horvath, Sarah Edwards,  
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February 2015

## Acknowledgements

Many organisations and individuals have supported this rapid evidence assessment. The research team would like to thank everyone who responded to the call for papers. We are especially grateful to Kylie Wick, Project Development Coordinator at Project Guardian; Lance Talbott, Manager, Strategic Services for Transit Police in Metro Vancouver; Deputy Inspector Raymond Porteus at the New York Police Department; Kenneth Green, Chief of Police (Interim) at the MBTA Transit Police Department and Richard Mann, Safeguarding Programme Lead at the British Transport Police. We are also grateful to the team at the British Transport Police for their support throughout the project, in particular Keely Gunson and Emily Dryer-Beers.

**Please reference this report as follows:** Gekoski, A., Gray, J.M., Horvath, M.A.H., Edwards, S., Emirali, A. & Adler, J. R. (2015). *‘What Works’ in Reducing Sexual Harassment and Sexual Offences on Public Transport Nationally and Internationally: A Rapid Evidence Assessment*. London: British Transport Police and Department for Transport.

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## Foreword

Britain's railways are enjoying a period of unprecedented growth. Passenger numbers continue to grow and the demand for train services at times that match modern travel patterns mean services are available throughout the day and often late at night. Ensuring passengers are safe and secure throughout their journey is fundamental to this continued success.

During this period of growth in demand, the overall amount of crime on the rail network is falling. However, within this improving picture one area has shown an upward trend – the number of sexual offences reported on the rail system has increased.

The Government is committed to tackling Violence Against Women and Girls (VAWG) and the Department for Transport (DfT) recognises that personal safety is fundamental to the on-going success of the rail network. In partnership with British Transport Police (BTP), the DfT fully supports this overarching commitment to ensure the travelling public are able to reach their destination safely.

This Rapid Evidence Assessment (REA) is the next step in seeking to understand what more can be done to improve personal safety and security on the rail network. By reviewing current practice, the assessment highlights the success of BTP's ground-breaking Project Guardian approach. This has contributed to the overall understanding of how to tackle the wider issues around sexual offences on the railway.

The REA is believed to be the first of its kind; drawing together methods from across the world and identifying best practice from different countries and continents. It will allow field experts and stakeholders to discuss the subject and examine 'what works' in terms of reducing sexual offences on public transport. With DfT support, the next stage will see an international seminar of interested parties brought together to debate and discuss the assessment. Further opportunities to tackle sexual offences across the rail network and how similar approaches can be applied to other modes of public transport will be identified.

As co-sponsors of the assessment, we share a strong commitment to improving the safety and security of all who use the rail network and especially to tackling sexual offending. We hope that you find this assessment informative and thought provoking and would very much welcome your views.

Please contact BTP at [ResearchandDevelopment@btp.pnn.police.uk](mailto:ResearchandDevelopment@btp.pnn.police.uk) if you would like to provide comments or views on this document.

A handwritten signature in black ink, appearing to read 'Claire Perry'.

**CLAIRE PERRY MP**

A handwritten signature in blue ink, appearing to read 'Paul Crowther'.

**PAUL CROWTHER OBE**



## Executive Summary

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### Background

In Britain, public transport is generally very safe and serious sexual assaults are rare. However, research has found that around 15% of women and girls have been subjected to unwanted sexual behaviour on the London transport network, the vast majority of which goes unreported (Transport for London [TfL], 2013a). Such behaviours cover a wide spectrum and may include anything from being stared at, propositioned, followed, pictured, rubbed against, touched, or raped. Being a victim of such behaviours can have serious psychological and behavioural effects and may result in women and members of vulnerable groups being too afraid to use public transport.

British Transport Police (BTP) is already involved in initiatives to address these areas of concern. In partnership with the Department for Transport and as part of their on-going commitment to increasing safety for female passengers, BTP co-commissioned this work in order to explore the key research question:

**‘What works in reducing sexual harassment and sexual offending on public transport nationally and internationally?’**

To investigate this question, a team of researchers from Forensic Psychological Services (FPS) at Middlesex University conducted a Rapid Evidence Assessment (REA), the results of which are considered in this report.

## Key definitions

For the purpose of this report, the following definitions have been adopted:

**Sexual harassment:** unwanted or unwelcome sexual attention.

**Sexual assault:** when a person is threatened, coerced, or forced into sexual acts against their will.

**Public transport:** forms of transport that are available to the public, charge set fares, and run on fixed routes (e.g. trains, buses, trams).

## The process of conducting this research

By conducting a REA, the team were able to identify and synthesise the available evidence as exhaustively as possible, within a timeframe of eight weeks. Details of this process are presented in the 'Method' section of this report. Literature searches and a 'call for information' identified **1889 potential** source materials, **191** of which were ultimately deemed relevant. These were analysed in order to identify the main initiatives that are being used to reduce sexual harassment and assault on public transport nationally and internationally. Where evaluations of relevant initiatives were available, these were sifted for quality and drawn on to identify 'what works' in this area.

## Key findings

This REA identified numerous national and international initiatives that have been designed, and are being implemented, to reduce sexual harassment and assault on public transport. Unfortunately, there are few rigorous evaluations using before and after measures of crime/incidents or randomised control trials to provide evidence of whether such initiatives achieve their aims. The review therefore relied on more process-based research that solicits the views of transport managers and staff, and of women themselves, in regard to their perceptions of initiative efficacy. Where the relevance was clear, initiatives were included that aim to reduce unwanted sexual behaviour in public spaces, broadening the scope to encompass materials that are directly transferable. Where relevant, initiatives pertaining to

crime reduction on public transport, but not to sexual offences specifically, have also been considered.

This report identifies seven main initiatives that are being used to combat unwanted sexual behaviour on public transport worldwide. These are:

- 1. Formal surveillance:** extra patrols by high visibility transport staff and police, as well as non-uniformed/undercover police operations
- 2. Technological surveillance:** CCTV cameras on vehicles and at transport hubs such as train stations and bus stops
- 3. Natural surveillance:** derived through better lighting and visibility across transport networks
- 4. Advertising campaigns:** sensitively designed campaigns aimed at increasing reporting, raising awareness, and challenging attitudes
- 5. Grassroots action:** including community outreach, awareness campaigns, and demonstrations, to disseminate information and start a public conversation
- 6. New technology:** online platforms and smartphone apps for women to share their experiences, report incidents, track passengers, and create maps with hotspots of offending
- 7. Women-only transport:** gender-segregated carriages on trains and buses

Ten further initiatives were identified but given lower priority in the report due to their less direct relevance or limited evidence base. These are: (i) good maintenance of transport and facilities; (ii) emergency/panic buttons and phones; (iii) dedicated spaces at transport hubs to report incidents; (iv) reporting hotlines; (v) personal request stops on buses; (vi) real-time electronic scheduling information at bus stops/rail networks; (vii) women-only taxi firms; (viii) increasing the sentence severity and likelihood of arrest, charge and conviction; (ix) enhanced data collection methods; and (x) better incorporating women's voices into transport services.

Innovative examples of current practice tend to involve some combination of the above initiatives within a co-ordinated package of measures. Project Guardian in London, England, the Metro Vancouver Transit Police in Canada, and the New York City Police Department Transit Bureau in the USA, all do this and are presented as illustrative case studies.

## Recommendations

- Project Guardian in London, England, incorporates many of the initiatives reviewed in this report and more. In this sense, it is one of the most comprehensive programmes aimed at reducing unwanted sexual behaviour on public transport in the world. The project has seen a number of benefits and received positive feedback however it is yet to be independently evaluated. We therefore recommend that an independent evaluation of the project is carried out either before, or alongside, national roll out.
- In an economic and political environment where financial constraints are a reality, transport agencies and police must frequently consider cutting costs through actions such as reducing staff numbers; particularly with the development of automated fare collection systems and CCTV. However, visible staffing is consistently rated by women as one of the most desirable measures in reducing unwanted sexual offending. Some initiatives in Britain – such as Project Guardian and the employment of Rail Community Officers by South West trains – clearly recognise the potential value of extra staffing, having substantially added to staff and police numbers.
- Transport agencies and police should take into account passengers' concerns about CCTV, with best practice involving cameras being locally monitored 24/7 and rapid responses to observed incidents. More reliable evidence is urgently needed as to the effectiveness of CCTV in reducing sexual harassment and offences. Randomised control trials should be conducted.
- Prominent messages should be posted throughout transport networks, telling passengers how and where CCTV is being used, as well as giving examples of cases in which offenders have been identified and prosecuted through CCTV images. This reassures the public and acts as a deterrent to potential offenders.
- All initiatives that aim to reduce unwanted sexual behaviour on public transport need not only to be implemented, but for the public to *know* that they are being implemented, and to know whether or not they are working. Initiatives need to be publicised and rigorously evaluated as a priority, both to act as a reassurance to passengers and deterrent to offenders.
- Multi-agency consultation and work between transport agencies, the police, women's groups, and the wider community are needed in order to encourage collaborative working and engagement in this area.
- Personal request stop schemes on buses are frequently recommended in research yet few seem to exist. It is recommended that pilot projects be developed to test their viability.
- Although women-only transport may be an effective means of reducing unwanted sexual behaviour on public transport in some countries, they are essentially 'short-term fixes' and reinforce a message that women must be contained and segregated in order to protect them. They are therefore not recommended in countries such as Britain, where they would be a retrograde step.
- Transport agencies should look at widening their safety initiatives to the areas immediately around public transport as there is evidence that these may be the scenes of more serious sexual assaults and that crime may be displaced there.
- More women need to be prominently involved in the (re)design and planning of transport services, as they broaden perspectives on the physical and environmental factors that can enhance women's security.

## Introduction

Sexual harassment and assault on public transport<sup>1</sup> is an international daily occurrence. The behaviours involved may range from the relatively mild to the very serious. These include, but are not confined to, lewd comments, catcalls, ogling/leering, innuendos, sexual invitations, threats, displaying pornography, staring, being followed or photographed, masturbation, frotteurism, unwanted sexual touching, and rape (Project Guardian, 2013; Shoukry, Hassan & Komsan, 2008).

Specific public transport contexts may facilitate such activity (Transport for London [TfL], 2013b). The environment is hard to control, being open to anyone, yet simultaneously predictable in terms of passengers, who are sedentary, unable to exit safely or quickly, and often unguarded (Smith & Clarke, 2000). Overcrowding and isolation are also key features that may enable sexual offending. For example, crowded, enclosed rush hour conditions, may facilitate rubbing against a woman on an underground carriage. Conversely, women may be more vulnerable when public transport is largely deserted or stations are isolated.

In Britain, serious sexual assaults are rare and travelling on public transport is generally safe (TfL, 2013b). Yet, a survey carried out by TfL found that 15% of women and girls have experienced unwanted sexual behaviour on the London transport network (TfL, 2013a). A YouGov survey, for the End Violence Against Women Coalition (EVAW, 2012), also found that nearly a third of women aged 18-24 have been subjected to unwanted sexual attention on London's transport network.

The British Transport Police (BTP) have already implemented initiatives, such as Project Guardian, that aim to reduce unwanted sexual behaviours and these will be considered throughout this report. However, in their commitment to make public transport as safe as possible for female passengers, BTP in collaboration with DfT wish to learn more from how other police forces and transport agencies around the world approach this area. They have therefore commissioned Forensic Psychological Services (FPS) at Middlesex University to

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<sup>1</sup> Also known as public/mass transportation/transit.

conduct a Rapid Evidence Assessment<sup>2</sup> to consider: ‘What works’ in reducing sexual harassment and offences on public transport nationally and internationally?

In this report, sexual harassment is broadly defined as any unwanted or unwelcome sexual attention; sexual assault occurs when a person is threatened, coerced, or forced into sexual acts against their will (Lawlink, 1999)<sup>3</sup>. Specific examples are given in section (ii) below. Although such behaviours are occasionally experienced by men, the vast majority of victims are women or girls (Stringer, 2007) and so it is this group that are the focus of the report.

Public transport is defined as: ‘buses, trains, and other forms of transport that are available to the public, charge set fares, and run on fixed routes’ (Concise Oxford English Dictionary, 2011, p1160). In contrast, ‘private transport’ includes not only personally owned cars or other motorised vehicles, but also taxis and (licensed and unlicensed) mini-cabs (Ceccato, Beshagi & Wiebe, in progress). The vast majority of literature considered in this report relates to trains, subways, buses, and trams.

### **(i) The impact of sexual harassment and offences on public transport**

Unwanted sexual behaviours may have repercussions for victims and society wherever they occur. Considering public transport in particular, research has highlighted increased mental health problems such as post-traumatic stress disorder (PTSD); changes in self-esteem; heightened perceptions of vulnerability and the feeling of living in a dangerous world (Horii & Burgess, 2012). Women may also feel angry, disgusted (Jafarova, Campbell & Rojas, 2014), upset, anxious, weak, humiliated, agitated (Fahmy, Abdekmonen, Hamdy & Badr, 2014), objectified, and frustrated (Dhillon & Bakaya, 2014). They may experience intense fear, disturbed sleep, and nightmares (Battered Women’s Support Services, 2014). In short, ‘the direct physical and emotional impact on the victims cannot be understated’ (NYPD Transit Bureau, n.d., p3).

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<sup>2</sup> For more details see ‘Method’ section

<sup>3</sup> Legal definitions of various sexual offences vary across jurisdictions; this definition has been used as it relates to the range of behaviours that are the focus of the report.

Perhaps the most fundamental behavioural effect of experiencing unwanted sexual behaviours is the impact upon mobility (Loukaitou-Sideris, 2014). Such experiences, or the fear of them, may make women feel that they have to adopt self-protection strategies, such as altering what they wear (Fahmy et al., 2014), or positioning themselves in certain ways, such as leaning against walls so that nobody is behind them (Rossi, 2014). Some women have also reported putting bags between themselves and other passengers, adopting 'dead-pan' expressions, avoiding eye contact, travelling with a male companion (Dhillon & Bakaya, 2014), and/or travelling in groups (Tulloch, 2000).

If acutely afraid of travelling on public transport women may simply not do so or may restrict themselves to times when they feel safer (Easton & Smith, 2003). Others may seek alternative, less convenient or more expensive ways to travel such as taxis (Jafarova et al., 2014) or personal means of transportation instead (Smith & Clarke, 2000). However women in areas of low income or high deprivation (Easton & Smith, 2003), or in countries with a wide income disparity (Peters, 2001), often do not have access to cars and are likely to become 'transit captive' (Smith, 2008) if their options are restricted.

Even in more affluent areas, where women do have greater access to private transport, policies to discourage car-use, promoting 'greener' cities (e.g. Department for Transport, 2000), may make travelling by car almost impossible. With cars being inaccessible or impractical, and afraid to use public transport, women's ability to go about their normal lives and contribute fully to society may be severely curtailed.

'This fear may preclude them from a basic right of the city – the ability to move carefree from origin to destination without worrying that a "wrong choice" of mode, transport setting, or time of travel could have consequences for their safety' (Loukaitou-Sideris, 2009, p105).

To avoid social exclusion (Easton & Smith, 2003), it is imperative that women can depend on reliable, accessible, and – perhaps above all – *safe* public transportation.

## **(ii) Most unwanted sexual behaviour on public transport goes unreported**

It is widely acknowledged that sexual assault and harassment are generally underreported, with estimates for England and Wales varying between 75-95% of victims never reporting incidents to the police (e.g. HMCPSP & HMIC, 2007; Ministry of Justice, Home Office and Office for National Statistics, 2013). These findings are replicated on public transport (TfL, 2013a). High rates of non-reporting have also been found internationally: in New York it is estimated that 96% of sexual harassment, and 86% of sexual assault, on the subway goes unreported (Stringer, 2007); in Baku, Azerbaijan, none of the 162 out of 200 women who reported having been sexually harassed on the metro reported it to the appropriate authority (Jafarova et al., 2014); in Egypt, of 1010 women surveyed, only 2.4% of the 83% of Egyptian women and 7.5% of the 98% of foreign women living or travelling in Egypt, who had experienced sexual harassment in a public place reported it (Shoukry et al., 2008).

TfL conducts quarterly Safety and Security surveys, involving 1,000 telephone interviews with Londoners aged 16 and over, and includes nine questions about unwanted sexual behaviour, harassment, and assault on public transport. Between April 2012 and January 2013 the vast majority of victims – 89-98% – did not report incidents to the police or TfL (Twyford, 2013). Similarly, when 130 women who had all experienced some such incident, were interviewed about the barriers and triggers to reporting unwanted sexual behaviour, only one had reported it (TfL, 2013a).

There are numerous reasons for non-reporting, the most common of which include: the incident not seeming serious enough or worth reporting; the victim ignoring/not being bothered by/moving away from the behaviour; thinking that the authorities would not take the report seriously or would do nothing about it; not knowing who to report it to; being unable to remember the details of the perpetrator and/or thinking they would not be caught; not wanting to make a fuss or being embarrassed; being scared/frozen at the time; and the behaviour having become normalised (Twyford, 2013).

Reasons for non-reporting may also vary between countries with differing extents of gender (in)equality. Women may see the police as a threat not an ally; fear being accused of



provoking the harassment; and perceive a 'socially programmed attitude that boys will be boys' (Jafarova et al., 2014, p3). Women may also fear a scandal or stigma attached to speaking out (Fahmy et al., 2014), or keep quiet to protect self or families' prestige (Taylor, 2011). Furthermore, 'within patriarchal societies, women are often treated as objects. This objectification is considered natural and justified' (Dhillon & Bakaya, 2014, p8).

Low reporting rates not only underestimate the extent of offending but also make it harder to intervene. Improving reporting is vital, and should help authorities to better understand incidence, location, and frequency of activity ('hotspots') so as to better develop and target initiatives.

### **(iii) The global scale and nature of the problem**

Due to the large problem of underreporting, it is arguably more useful to look at the 'dark figure' of sexual harassment, rather than official statistics and recorded crime, when considering the scale of the problem globally. The research identified in Table 1 (Appendix A) suggests that unwanted sexual behaviour on public transport is a significant international problem, which has been experienced by the majority of women in some countries, and encompasses a wide range of behaviours. For example, a recent survey of 150 women on the Paris Metro found that 94% had experienced 'some sexist behaviour', from whistling to sexual assault (Osez le Feminisme, 2014). A survey of 200 female commuters using the metro in Baku, Azerbaijan, found that eight in ten women (81%) had experienced sexual harassment (Jafarova et al., 2014). An online survey of 1,790 New York City subway passengers found that 63% of respondents said that they had been sexually harassed in the subway system and 10% said they had been sexually assaulted (Stringer, 2007). In 2008 in Mexico, a study by the National Board for the Prevention of Discrimination found that nine in ten women had been subjected to sexual violence on public transport (Dunckel-Graglia, 2013b).

The most recent BTP figures – as presented in Table 2 – show that, from 2009-2014, there were 5,889 sexual offences recorded on the railways<sup>4</sup> in Britain (BTP, 2014, personal

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<sup>4</sup> Unfortunately, there are no corresponding figures available for buses and other forms of public transport.

communication). In 2013-14, sexual offences rose by approximately one fifth from the previous year, from 927 to 1,114, with the biggest increase seen in sexual assaults. This rise came alongside various initiatives designed to increase reporting.

*Table 2: Sexual offence figures on the railways in Britain by year*

<b>Sexual Offence</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15<sup>5</sup></b>	<b>TOTAL</b>
Rape	15	9	14	14	19	17	<b>88</b>
Sexual Assault By Penetration	6	8	4	2	3	10	<b>33</b>
Sexual Assault	509	530	533	499	642	589	<b>3302</b>
Outrage Public Decency	215	199	231	245	274	231	<b>1395</b>
Voyeurism	12	12	15	10	13	11	<b>73</b>
Exposure	156	162	191	138	148	113	<b>908</b>
Other	8	15	19	19	15	14	<b>90</b>
<b>TOTAL</b>	<b>921</b>	<b>935</b>	<b>1007</b>	<b>927</b>	<b>1114</b>	<b>985</b>	<b>5889</b>

An analysis of sexual offences recorded by BTP from 2007-2012, found that 58% were classified in the report as serious (e.g. rape, sexual assault, indecent assault, exposure, voyeurism, public indecency) (Lambillion, 2012). Most of these occurred during commuting times with the exception of rapes, the peak time for which is Fridays between 20:00 and 01:59.

As noted in section (ii), the vast majority of sexual offences on public transport go unreported. The aforementioned YouGov survey (EVAW, 2012), asked 523 London women about their experiences of unwanted sexual contact or attention on public transport. It was found that 28% of women in London do not feel safe using public transport at any time of day and night and that 19% had experienced unwanted sexual behaviour over the last year. Specifically:

- 14% have experienced unwanted sexual attention
- 5% have experienced sexual touching
- and 31% of women aged 18-24, and 24% aged 25-34, have experienced unwanted sexual attention.

Similarly, TfL's Safety and Security surveys between April 2012 and January 2013 found that:

<sup>5</sup> Up until 02/12/2014

- between 12 and 15% of women have experienced unwanted sexual behaviour
- the most commonly victimised person are those aged between 16 and 24
- the behaviours most frequently involve staring, inappropriate touching, and verbal comments
- and the incidents most commonly take place on buses, in the evenings between 5pm and 11pm (Twyford, 2013).

The problem in Britain is not as acute as in some of the international comparators considered in Table 1. It should be noted however that only English language publications were included in this report. Although there were some responses to the call for papers from transport agencies and police forces in mainland Europe, more research was identified from emerging and less gender equal countries. Lower British figures may also relate to increasing awareness of sexual assault and harassment, its unacceptability, and the commitment by the government and transport agencies to tackle the problem<sup>6</sup>.

#### (iv) Policy developments

The existence and scale of sexual harassment on public transport worldwide has significant consequences for individuals and societies, yet has been relatively ignored in research, policy, and the media (Stringer, 2007). Internationally, policy initiatives have been variable, and increasing the safety of women passengers has, for various reasons, not been high on the agenda of all transport agencies and governments (e.g. Loukaitou-Sideris, 2014; Taylor, 2011).

In Britain, safety on public transport has become a policy priority, particularly for vulnerable groups such as women. In 1998 BTP launched the Secure Stations Scheme – a programme ‘for rewarding station operators, through accreditation by BTP, for managing security and demonstrating to customers their desire to reduce crime’ (Batley et al., 2012, p1). Also, the *Transport Ten Year Plan* (Department for Transport, 2000) emphasised the vital importance of further developing and maintaining safe travel for the public across all modes as a primary objective (Department for Transport, 2000).

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<sup>6</sup> See section (iv) (below)

Policies such as those set out by the Department for Transport (2000) and by the Greater London Authority (2010) provide a backdrop for developments in the prevention of sexual harassment and assault on public transport. *The Mayor's strategy to improve transport safety and security in London, 2010-2013* (Greater London Authority, 2010) set out five objectives, each with a set of priorities to reduce crime and improve public confidence. These included objectives to reduce crime and anti-social behaviour on public transport and specifically target sexual offences. The Equality Act 2006 placed a duty for gender equality on all public authorities, resulting in organisations such as Transport for London (2007) and the Greater London Authority (2007) publishing Gender Equality Schemes. Such schemes identify that increasing actual and perceived security is particularly important for female travellers, and seek the views of transport users in developing action plans. The 2012 Department for Transport document *Transport for Everyone: An Action Plan to Promote Equality*, continued the emphasis on increasing safety for female travellers, and identified the on-going need for physical and technological security enhancements.

Such initiatives are intended to raise not only actual safety but also confidence and are in part derived from findings where both men and women state their intention to use more public transport if additional safety measures are put in place (Stafford & Pettersson, 2004). It was predicted that introducing further safety initiatives would increase the number of journeys on public transport made by 11.6%. This would impact positively on social exclusion and enhance the quality of women's lives (Stafford & Pettersson, 2004).

This report aims to identify and describe initiatives taken both nationally and internationally to reduce sexual harassment and offending on public transport. Furthermore, it looks at evidence of 'what works' in this area and makes a number of recommendations for the future of prevention.

## Method

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The research adopted a question-led adapted Rapid Evidence Assessment (REA) in order to investigate ‘What works’ in terms of reducing sexual offences on public transport nationally and internationally?’

A REA is a tool for synthesising the available research evidence on a policy issue, as exhaustively as possible, within the limitations of a given timeframe (Davies, 2003). A toolkit for undertaking a REA has been widely implemented since its inception by Government Social Research (see <http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance>). The toolkit advises that a REA can be completed in three to six months; however, by adapting the method to suit BTP’s available timeline and specified research parameters, FPS at Middlesex University were able to deliver the assessment in eight weeks. In so doing, the following amendments to the normal REA method were made:

- limited the academic and grey literature searches to databases previously found to be most productive in REAs
- limited the number of search strings used
- limited the results reviewed to the most relevant
- limited the ‘weight of evidence’ scoring approach.

## Procedure

### *Inclusion criteria for material*

Inclusion criteria were agreed between Middlesex University and BTP, these were:

- studies published between January 1994 and December 31<sup>st</sup> 2014
- studies focused on sexual offences on transport/transport stations/hubs
- studies focused on preventing/reducing sexual offences on transport/transport stations/hubs
- English language publications
- and all research methods.

These inclusion criteria were developed with several considerations in mind. The timeframe was restricted to the last 20 years, both to limit the number of papers to be reviewed and to take into account changing approaches to interventions. Only English language publications were considered as there was insufficient time or resource for translation. All research methods were included so as to ensure qualitative and quantitative works were identified and given equal emphasis.

### *Generation of search terms*

Search terms were developed from the research questions to ensure scope and rigour<sup>7</sup>. From these search terms two separate search strings were generated using different combinations of these terms<sup>8</sup>.

### *Literature searching*

The relevant literature was identified through three main methods:

- systematic searches for relevant studies and literature across high priority academic databases relevant to the issue
- an online search for grey literature
- and requesting relevant material through a call for papers.

The online databases were: ISI Web of Science (WoS) and International Bibliography of the Social Sciences (IBSS). These databases were chosen as they were the ones which the authors had previously found to be the most comprehensive and useful for obtaining general social scientific and specific criminological sources, when conducting other REAs. Grey literature was identified through online Google searches. The three databases all allow ordering of results by relevance, so the first 1,000 results were reviewed from each database, for each search. Finally, the call for papers went out to networks of researchers, practitioners and police officers. RefWorks Flow software was used to store the search results at each stage.

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<sup>7</sup> See Appendix B

<sup>8</sup> See Appendix C

The first stage of literature searching involved scanning the academic databases – this identified 1,582 unique papers to be screened. This was done firstly by title, secondly by abstract, and lastly by reading full text articles, which were obtained through Middlesex University Library, the author’s website or university, Researchgate, LinkedIn, and using the Inter-library loans system. Full screening left a total of seven academic references deemed relevant to the REA.

This process was then repeated for the Google searches, using simplified search terms and strings. Google searches initially identified 243 pieces of material, 143 of which were deemed relevant to the REA. To ensure that the search process was as thorough and rigorous as possible, after the academic database and Google searches were complete, the reference lists and bibliographies of the relevant material were also scanned for key papers and reports that might have been missed. This produced a further 14 sources for inclusion.

The call for papers was sent out to national and international networks and contacts identified by Middlesex University and BTP. In total 43 pieces of material were received or identified of which 27 were deemed relevant.

***Table 3: Total number of search results and items excluded and included***

Searches	Total	Excluded	Included
Academic databases	1582	1575	7
Google	243	100	143
Reference lists	21	7	14
Call for papers	43	16	27
<b>Total</b>	<b>1889</b>	<b>1698</b>	<b>191</b>

A total of 191 documents were eventually identified: 151 grey literature sources and 40 academic pieces. Key information from each piece of material (e.g. author(s), title, date of publication, type of source, country, method, and summary) was then extracted and tabled.

### ***Weight of Evidence (WoE) coding***

Each reference was evaluated using a tailored ‘Weight of Evidence’ (WoE) approach, in which the quality and relevance of the literature was assessed and given a strength rating. The approach followed was broadly in line with that developed by the EPPI-Centre (Evidence

for Policy and Practice Information and Co-ordinating Centre; Gough, 2007) and can be used for both quantitative and qualitative research. This ensured consistency in approach and allowed for assessment of existing research across a variety of methodologies and diverse analytical strategies according to a common assessment structure.

The EPPI approach uses four scales each of which is scored as high (3), medium (2) or low (1). The first scale asks raters to assess their confidence that the reported findings answer the research questions. The second EPPI scale requires raters to decide whether the research design and analysis used are *appropriate* to help answer the research questions within the REA. The third scale is concerned with how *relevant* the focus of the research is for addressing the questions in the REA. The fourth scale asks the rater to consider all of this information in order to give an overall judgement of confidence and relevance.

To suit the specific parameters of this research requirement, the EPPI-Centre's approach was simplified, with each study weighted according to two dimensions, the first being overall confidence in the paper itself, and the second being the relevance of the paper to the REA. Studies with lower judgements were given less weight in the synthesis. Weight of Evidence scores for all papers included in the REA can be found in Appendix L.

### **Data synthesis**

Data were synthesised to produce the final report by: (i) focusing on and organising data around the research question; (ii) identifying and exploring patterns in the data, using thematic analysis; (iii) integrating the data; (iv) revisiting the synthesis to check for quality, sensitivity, coherence, and relevance; (v) creating a final synthesis; (vi) producing a draft report for BTP; (vii) obtaining feedback from BTP; and (viii) making revisions to the draft to produce the final report.



## Findings

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This REA has identified numerous national and international initiatives that have been designed and are being implemented to reduce sexual harassment and assault on public transport. Unfortunately, there are few rigorous evaluations using before and after measures of crime/incidents or randomised control trials available to help conclude whether these initiatives achieved their aims. We are therefore often reliant on more process-based research that solicits the views of transport managers and staff and of women themselves in regard to their perceptions of initiative efficacy. Where the relevance was clear, we have also included initiatives that aim to reduce unwanted sexual behaviour in public spaces, broadening the scope to encompass materials that are directly transferable. Relatedly, we have considered initiatives that particularly relate to crime reduction on public transport, but not to sexual offences specifically.

Seven initiatives are mentioned most frequently in the literature and are perceived to be the most effective; these are presented in detail. The report then outlines ten other initiatives that were identified but about which there is less evidence. For each of the seven main initiatives, the initiative itself and its aims are described alongside illustrative examples. Evidence is then considered of whether the initiative works. Outcome and impact is assessed via formal evaluations whenever possible, alongside surveys of transport agencies, passenger opinions, and other evaluative measures.

Although each initiative is considered separately here, it should be noted that both the literature and experts in the area often recommend that such initiatives be implemented as a co-ordinated, complimentary set of measures in order to maximise safety for passengers (e.g. Loukaitou-Sideris, 2005; McKenney, 2014, personal communication; Yavuz & Welch, 2010). As concluded by Stafford and Pettersson (2004), it is 'very much a package of measures that make people feel more secure when using public transport' (p105).

## 1. Formal surveillance: Increasing police and/or transport staff on public transport

High visibility patrols by uniformed police and transport staff, in addition to the deployment of plain clothes officers and/or specialist undercover units, are one of the most fundamental crime reduction strategies used on public transport. When it comes to sexual harassment and assault specifically this 'formal surveillance' strategy may serve various positive functions including:

- helping to deter offenders from committing unwanted sexual behaviours
- reducing women's fear of sexual harassment and assault
- providing swift help for passengers in need
- giving passengers somebody obvious to report incidents to
- and identifying and arresting perpetrators.

In 1997 a nationwide survey of transit operators in the US found that uniformed police patrols were the main strategy used by transit agencies that had police forces (Needle & Cobb, 1997). Core techniques included uniformed officers riding on trains and buses, having fixed and random patrols in and around stations and at bus stops, and problem solving. The authors note that this was 'supplemented by directed patrols, including special foot patrols, bicycle patrol, bus and train boardings, and patrols formed to address special situations and clientele' (p10). Undercover or plain-clothes officers (and occasionally transport employees) were also used in decoy operations, targeted surveillance and to identify repeat offenders.

However the increased use of automated fare collection systems on public transport coupled with a decrease in police recruitment has resulted in a reduction of transport staff and police officers on public transport (Stringer, 2007). The high cost of running public transport has also led to pressure to reduce staffing costs (Smith & Clarke, 2000). Additionally there has been a substantial increase in the use of CCTV<sup>9</sup> which may be used to replace police and other security personnel (Welsh & Farrington, 2008) and is 'decidedly less expensive' (Loukaitou-Sideris, et al. 2009, p50). Examples of past and present initiatives

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<sup>9</sup> Please see the following section.

relating to the visible and covert deployment of officers on public transport are summarised in Table 4 (see Appendix D) alongside evaluations where they are available.

An example of a targeted police presence intervention comes from the New York City Police Department (NYPD) who currently 'deploy uniform/plain clothes personnel to known problematic areas, specific stations, and train lines where sex offenders frequent based on analysis of criminal complaints and arrests' (NYPD Transit Bureau, n.d). In 2006 the NYPD also ran 'Operation Exposure' where plain-clothes officers on subway cars were used to conduct 'undercover stings' (Gold, 2006). In 2014 in Bogota, Columbia, an 'elite group of undercover police officers' blended in with crowds at rush hour on TransMilenio, the city's bus rapid transit system, to identify offenders (Jaramillo, 2014). Both undercover operations were deemed a success in terms of increased arrest rates. However, we have no further information in terms of whether these undercover initiatives were repeated or are on-going; neither do we have any long-term follow-up data on conviction rates.

The Target Policing Initiative, which ran for two months in Britain in 2002, deployed uniformed police officers in high visibility jackets in addition to plain-clothes officers on buses and at bus stops (Stafford & Pettersson, 2004). Currently Project Guardian has over 2,000 police officers and police community support officers (PCSOs) who are trained to deal with cases of sexual harassment and offences and are dedicated to patrolling London's transport network<sup>10</sup>. Proactive teams of specialist officers also target 'hot spots' of sexual offending and follow those who may be displaying suspicious behaviour (Wick, personal communication, 2014). Concerted 'weeks of action' have also involved deploying large numbers of officers to talk to the public, gather intelligence, make arrests (Lo, 2013), execute outstanding warrants and enforce ancillary order conditions (Wick, 2014).

Project Guardian's use of proactive teams of specialist officers has been deemed 'highly successful' in bringing 'hundreds of suspects to justice' (Wick, personal communication, 2014, p3). A week of action in September 2013, where an extra 120 uniformed and plain-clothes officers conducted daily patrols of London's transport network, resulted in fifteen

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<sup>10</sup>[http://www.btp.police.uk/advice\\_and\\_information/how\\_we\\_tackle\\_crime/project\\_guardian.aspx#sthash.2RNoNbBz.dpuf](http://www.btp.police.uk/advice_and_information/how_we_tackle_crime/project_guardian.aspx#sthash.2RNoNbBz.dpuf)

arrests (Bates, 2013). Furthermore, since the launch of Project Guardian a 20% increase in the reporting of sexual offences on the transport network was seen compared with the same period the previous year and there was a 32% increase in the detection of sexual offences (Bates, 2013)<sup>11</sup>. However, we do not know how many of these arrests have resulted in convictions.

Another example of high visibility practice can be seen with the 'Rail Community Officers' employed by South West Trains in England who work alongside BTP in order to provide a high profile uniformed presence. In 1998 in New South Wales, Australia, security guards were employed from a private security firm to patrol trains (Audit Office of New South Wales, 2003). However, a before and after analysis of crime figures found that the rate of sexual offences remained fairly steady (Audit Office of New South Wales, 2003). Transport companies have also experimented with training members of the community – on a voluntary or paid basis – to be a reassuring extra presence on public transport, with mixed results. Such schemes include Tri-Met, in Portland, USA, in the 1990s (Schulz & Gilbert, 1996); 'travel couriers' in the West Midlands in 2002 (Stafford & Pettersson, 2004); and Natteravnene (Night Owls) in Denmark (Hartvigsen, 2015, personal communication).

Although limited in number, there are evaluations of specific interventions to increase security. As considered above, these have often shown positive results; for example, associated increases in the numbers of arrests made (see Table 4), although follow-up data pertaining to convictions are not available. In addition, studies have sought to identify which measures passengers consider to be the most effective and reassuring. To this end increased police/staff presence is usually rated very highly. As David Sidebottom, passenger director at the independent watchdog Passenger Focus in Britain, recently said: 'Passengers tell us the best deterrent against crime is a visible staff and police presence on trains and at stations' (Dalton, 2014).

A survey of rail passengers in New Zealand found that the most popular initiative to increase feelings of personal security while on trains were roaming security guards and wardens

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<sup>11</sup> However, as Project Guardian runs numerous other initiatives (see Textbox 2) alongside increased policing and staff, this success rate is likely to be due to a combination of factors.

(Kennedy, 2008). Similarly, in Stockholm, Sweden, short interviews with passengers on underground stations found that visible guards, security officers, police and 'safety hosts' (trygghetsvårdar) were positively received (Uittenbogaard & Ceccato, 2013). This was supported by a large-scale study commissioned by the Department for Transport in the UK which drew on three quantitative surveys<sup>12</sup>, as well as discussion groups, to explore people's concerns about crime and perceptions of personal security on public transport (Stafford & Pettersson, 2004). The presence of staff regularly walking through railway carriages was rated as the number one most effective safety measure on trains.

Other research has also found that women in particular report being and feeling safer when there are police and staff present. The YouGov survey (EVAW, 2012) found that the highest number of women wanted action to be taken on transport staffing; second to staffing came more visible policing on the transport system. In New York just over a third (35%) of passengers surveyed thought that increased police presence would be the best way to reduce sexual harassment and assault in the subway system (Stringer, 2007). Similarly, a study exploring women's safety in transport environments through interviews with representatives of women's interest groups found that the majority would like to see more security guards and staff patrolling transport settings (Loukaitou-Sideris, 2014).

Passengers in the Department for Transport study (Stafford & Pettersson, 2004) also identified various staffing approaches that made them feel safer and which they believed increased efficiency:

- deployment when and where passengers feel the most afraid (e.g. after dark)
- targeting routes/hotspots known to have higher crime rates
- having staff/officers in high visibility uniforms or otherwise clearly identified
- passengers being aware of where the base is for the conductor/other staff on vehicles and the base being accessible
- and information being accessible about the role of transport staff and what response would be given in an emergency.

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<sup>12</sup> Including a household interview survey of 1618 adults in 1996, a survey of 1809 adults in 2002, and a survey of 310 young people in 2002.

Transport agencies also tend to rate staff and police presence as highly effective in reducing crime on public transport. For instance, representatives of 131 US transit agencies judged the presence of uniformed and non-uniformed officers on public transport and at transport hubs to be one of the most, or *the* most, effective safety measure (Loukaitou-Sideris & Fink, 2009). Despite this, only a small minority currently used or intended to deploy officers at bus stops and, as the authors concluded: ‘There is no doubt that transit agencies do not have the resources to install a police officer at every transit stop of their system’ (p20).

### 1.1 Summary

Unfortunately, there are a lack of formal evaluations which look specifically at whether the presence of police and transport staff on public transport reduces sexual harassment and offending. However, some of the specialist police operations considered here did appear to be effective in identifying and apprehending offenders. It is also clear that this type of formal surveillance is often *perceived* by women to be the most effective measure of combating crime in general, and sexual harassment in particular, and making them feel safer on public transport. This is particularly true for high visibility uniformed staff or police, as opposed to non-uniformed, plain clothes, and undercover staff. This belief was also shared by transport staff.

## 2. Formal surveillance: Closed-circuit television (CCTV)

CCTV is a technological security measure – specifically a means of capturing, monitoring, and recording images of what is occurring in a particular location in real time. Cameras may be fixed on one area, can be set to scan or may be operated remotely by controllers (TfL, CCTV, n.d). It is commonly believed that installing CCTV on public transport will reduce actual crime and fear of crime as offenders will not commit an offence when there is a good chance that they will be observed and therefore more likely be caught (Yavuz & Welch, 2010). Thus CCTV has become one of the most widely used crime prevention strategies on public transport (Yavuz & Welch, 2010). Table 5 (Appendix E) provides a summary of some international examples of CCTV use and any associated evaluations.

In the UK 'CCTV is the most heavily funded crime prevention method outside of the Criminal Justice System' (Welsh & Farrington, 2008, p2) and there were more than four million public cameras in 2007 (Farrington, Gill, Waples & Argomaniz, 2007). BTP has access to 30,000 cameras by way of a CCTV-hub in London which began operating in 2012; there are 11,000 cameras on the West Midlands bus network alone (Safer Travel Partnership, 2014); and TfL operate a large network of CCTV cameras across public transport in London. In London, the Network Rail System (which covers 15 mainline stations) has 1,800 cameras and the Underground has over 8,500 cameras on its stations and trains (BTP, n.d.).

In the USA 90% of representatives from 131 transit agencies surveyed reported using CCTV at train stations/platforms, around 75% at train station entrances and exits and nearly 70% on trains. With regard to buses, eight in ten used it on board, but only one in ten at bus stops (Loukaitou-Sideris & Fink, 2009). A study which documented the use of CCTV by passenger rail agencies throughout the US, also found that all of the 43 organisations who completed the survey used video surveillance in some form – mostly at stations, on platforms, and in shelters, as opposed to on vehicles (Schulz & Gilbert, 2011).

In New York, although CCTV is used across the subway system in order to monitor station activity and potential threats it is not currently commonly used on subway trains themselves. This has been under consideration (Neuman, 2007) and it was recommended specifically to help deter sexual harassment and reduce the fear of it (Stringer, 2007). In 2009 the No.1 train was fitted with CCTV cameras as part of a pilot programme, but in 2014 the Metropolitan Transportation Authority (MTA) was still studying the feasibility of installing CCTV on all 6,000 subway trains which would reportedly cost tens of millions of dollars (Smith, 2014).

Less wealthy countries tend not to rely as heavily on technological surveillance in public spaces. However, the use of such measures is being considered, introduced or extended in some emerging economies such as India (Cave, 2014). For example, in the wake of the gang-rape and murder of Jyoti Singh on a bus in Delhi in India in 2012 the government established Justice Verma's Commission to review the existing law and produce a report making recommendations for reform. Amongst the numerous suggestions made was the need for

more active CCTV in public spaces generally and public transport specifically (Verma, Seth & Subramaniam, 2013). However, CCTV has still only been fitted on a minority of vehicles, with just 500 out of 5,500 buses in Delhi having cameras (Cave, 2014).

CCTV is often assumed to be effective in reducing sexual harassment and offences on public transport. However, the evaluations identified do not focus specifically on this issue and, as can be seen in Table 5, the evidence regarding the effectiveness of CCTV on general crime reduction is mixed. A meta-analysis of 44 studies – which included three initiatives in underground stations in London, England, and one in Montreal, Canada – found that two of the programmes had a desirable effect, one had no effect and one had an undesirable effect on crime (Welsh & Farrington, 2008). In the Canadian study<sup>13</sup>, Grandmaison and Tremblay (1997) investigated the impact of CCTV on monthly crime figures in Montreal's subway stations and concluded that CCTV had no overall effect. However, a study in Sweden which looked at the impact of the introduction of CCTV on the Stockholm subway in reducing crime found that while there was no overall significant effect, crime on subways in busy, city stations was reduced by approximately 20% (Priks, 2010).

An alternative form of evaluation is based on the views of representatives from transport agencies, and those of passengers and members of the public; Table 6 (Appendix F) shows the key evidence in this area.

In a US study exploring transit operators' perceptions of the best safety measures, technological strategies – chiefly CCTV – were rated as the most effective (Needle & Cobb, 1997). In a Welsh study which asked 47 rail passengers about their perceptions of safety after viewing a virtual reality walk-through of six railway stations, passengers rated CCTV as the second most effective measure, after improved lighting, that would make them feel safer at train stations (Cozens, Neale, Whitaker & Hillier, 2003)<sup>14</sup>. One commented that: 'The cameras are priceless' (p129). Passengers in the study conducted by Stafford and Pettersson (2004) also rated CCTV as one of the top three most effective security measures while waiting for trains, on trains and on-board buses.

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<sup>13</sup> This was the only study in the meta-analysis within the timeframe of this REA

<sup>14</sup> Such studies rely, of course, on what passengers *say/think* would make them feel safer, as opposed to what they actually feel when asked after measures have been implemented.



In other studies, passengers – particularly women – have preferred increased staffing over CCTV (e.g. EVAW, 2012 [UK]; Kennedy, 2008 [New Zealand]; and Loukaitou-Sideris, 2014 [USA]). Findings from the Chicago Transit Authority Customer Satisfaction Survey (2003) also indicated that women prefer the presence of staff to that of technology ‘because they feel more vulnerable to victimisation when nobody is around and ... tend to be more sceptical that somebody is watching the video camera surveillance’ (Yavuz & Welsh, 2010, p2506). Similar doubts were also raised by participants in Stafford and Pettersson (2004) in relation to whether the cameras worked, produced usable images and were being monitored at a central control centre rather than locally.

## **2.1 Summary**

Without any studies which specifically investigate the impact of CCTV on sexual harassment and offending on public transport, it is difficult to assess its effectiveness in reducing such crimes. Findings from the studies which considered the impact of CCTV on crime in general were mixed: some found positive effects of CCTV on certain crimes at certain stations and some did not. As Welsh and Farrington (2008) conclude: ‘Overall, CCTV programs in public transportation systems present conflicting evidence of effectiveness’ (p14). Transport agency representatives, however, do generally rate CCTV highly as a crime reduction method and are enthusiastic about extending its use in the future. Unfortunately, with the exception of Cozens et al. (2003), research has largely found that women are dubious about the effectiveness of CCTV and would prefer increased surveillance in the form of extra staffing and police.

It is worth noting here that rapid advances in smartphone and wearable technology are also being drawn on amongst technological innovations to improve public safety. This is covered in greater detail in section 6.

## **3. Natural surveillance: Better visibility and improved lighting**

How the environment can impact upon crime levels has been explored for over half a century. In the early 1970s, the theory of Crime Prevention through Environmental Design

(CPTED) asserted 'that the physical environment can encourage or discourage opportunities for crime by its very design and management' (Cozens et al., 2003, p123). At the same time, defensible space theory argued that 'the design of the physical environment ... can create opportunity for people to come together and can remove opportunity for criminals to act freely' (Schulz & Gilbert, 1996, p553). In the context of women's safety and fear of crime, Loukaitou-Sideris (2005) observes that design can 'influence perceived and actual safety and can provide environmental cues as to whether to participate in public settings' (p108).

One CPTED measure which has been widely researched is visibility: both the possibilities of being seen oneself and seeing others. This type of visibility is commonly referred to as natural surveillance, which can be defined as the 'capacity of physical design to provide surveillance opportunities for residents and their agents' (Newman, 1972, p78, in Uittenbogaard & Ceccato, 2013, p23) and is a central idea in defensible space theory. It is argued that 'increased visibility and natural surveillance are key elements of successful crime prevention' (Uittenbogaard & Ceccato, 2013, p4) and may also contribute to decreasing fear of crime (Yavuz & Welsh, 2010). By improving natural surveillance it is thought that:

- offenders are less likely to remain unnoticed while waiting for a victim or preparing for an assault
- passengers can see who and what is around them
- fellow passengers or passers-by are more likely to see an offence occurring and may step in to help by calling the police, alerting staff or approaching the (perceived) offender (Uittenbogaard & Ceccato, 2013).

Table 7 (Appendix G) summarises international approaches to natural surveillance through design, with evaluations where available.

A key means of enhancing visibility is through better lighting, which can reduce both fear of crime and actual levels of crime (Yavuz & Welsh, 2010). Good lighting – defined as that which allows identification of a person who is 12-15 metres away – may both act as a deterrent to offenders and allow people to see who is around them, making them feel less

vulnerable (Lawlink, 1999). Following this logic, transport agencies 'are continuously expanding use of lighting and upgrading its performance' (Needle & Cobb, 1997, p10) and it should be regarded as 'a fundamental requirement' (Verma et al., 2013).

Better lighting may be prioritised in certain areas, such as those that are less used (e.g. corridors connecting platforms) (Stringer, 2007; Uittenbogaard & Ceccato, 2013). The type of lighting is also important; specifically, Stringer (2007, p19) recommends 'bright recessed lighting' which does not create unnecessary shadows. Solar-powered lighting, which can be activated by passengers on a timer, may also be useful, for example at remote bus stops where electricity is unavailable or too costly (Volinski & Tucker, 2003). Examples of poor lighting include badly positioned sensor and spotlights which may cause a glare and temporary 'light blindness' (Lawlink, 1999), and overly bright lights at bus shelters which create a 'fish bowl effect' – where passengers cannot see out but others can see in (Volinski & Tucker, 2003, p38).

Although no formal evaluations of improved lighting have been identified, passengers consistently rate it very highly. This is perhaps no surprise given that women in particular are more afraid of travelling on public transport after dark (EVAW, 2012; Smith & Clarke, 2000). Stafford and Pettersson (2004) found that 5-10% of women did not feel safe waiting at bus stops and train stations during the day and this increased to over half after dark.

In Wales, participants in the study by Cozens et al. (2003) ranked more, and better, lighting, as the number one potential modification to improve personal safety at railway stations. A survey in New Zealand also found that lighting was rated as the top measure to address personal security concerns while waiting for a bus (Kennedy, 2008). In Michigan, USA, bus passengers rated better lighting second, after emergency telephones at bus stops, out of seven safety features they were asked to assess (Reed, Wallace & Rodriguez, 2007). All representatives from 16 national women's interests groups in the US interviewed by Loukaitou-Sideris (2014) said that good lighting on public transport networks was 'extremely important' and there was 'no excuse' for not having it (p251).

Other design features may also increase or decrease visibility, impacting upon actual and perceived levels of crime (see Table 7). For example, a study of the Los Angeles Green Line found that incidents occurred most often on platforms, lifts and stairs which lacked visibility from surrounding areas (Loukaitou-Sideris, Liggett & Iseki, 2002). In Stockholm, Sweden, it was also found that dark corners on underground platforms, inadequate lighting, hiding spots in transition areas, poor platform sightlines and a lack of mirrors could all impact negatively on crime levels (Uittenbogaard & Ceccato, 2013, p23). The authors suggest that visibility could be enhanced by removing objects that may block passengers sightlines, providing unrestricted views – for example, not employing covering, sectioning or walling in lounges and exits, rather making them open spaces with glass windows or having waiting areas at stations that are transparent.

Visibility can also be increased by considering the positioning of train stations and bus stops, for example away from isolated areas near to abandoned buildings or dark alleys (Reed et al., 2007). Instead, as participants in Stafford and Pettersson's (2004) study commented: they should be placed by busy places such as shops, or where they can be overseen by houses and people. In Wales visibility of, and by, others was mentioned by all focus groups respondents as being a key factor in helping them feel safe at train stations (Cozens et al., 2003). However in certain rural and isolated areas this is often not possible as there simply are no busy surrounds. This means that it is often those who need public transport the most who may encounter the least safe environments.

Clear or 'see-through' bus shelters made of safety glass are also increasingly being used, replacing wooden or brick ones with poor visibility both in and out (Kennedy, 2008). Participants in the study by Cozens et al. (2003) also thought these should be used at train stations. Women interviewed by Loukaitou-Sideris (2014) also suggested enhancing visibility at bus shelters by not having adverts that blocked the view to the street.

Dense vegetation at train stations may also impair visibility. Passengers in Wales ranked improving visibility by 'cutting back vegetation' as 7th out of 22 suggested improvements to enhance their feelings of safety. This was something also recommended to make stations

safer by Lawlink (1999), who advised replacing low-growth shrubs ‘with single stem trees with high foliage to improve sight lines’ (p14).

### 3.1 Summary

Research indicates that crime levels in general may be higher in public transport settings where visibility is poor and that women feel much less safe in such environments, particularly after dark. Thus natural surveillance in terms of designing public transport with better visibility and having well lit facilities is consistently rated as a very important crime reduction measure and means of reducing fear of crime. Indeed, women frequently rate good lighting as essential in making them feel safer. While the studies in this section do not focus specifically on sexual offences it is likely that the benefits of natural surveillance would extend to these types of crime.

## 4. Raising awareness: Advertising campaigns

Advertising campaigns – or public service announcements (PSAs) – about sexual harassment and assault on public transport broadly aim to raise awareness and disseminate information to women and men, victims and offenders. More specifically such campaigns can be used to:

- encourage women to report incidents and ‘speak up’
- spell out what types of behaviours are unacceptable
- attempt to change male attitudes towards sexual harassment and assault
- inform the public about initiatives to reduce such behaviour
- appeal for witnesses to come forward
- and publicise pictures of suspects.

Generally speaking, advertising campaigns of this nature often aim to slowly and steadily increase awareness about the problem and consistently relay the message that such behaviours are unacceptable and should be reported. Selected examples of such campaigns are described in Textbox 1 and an example poster from the Massachusetts Bay Transport Authority (MBTA) in image 1.

### ***Textbox 1: Selected international examples of advertising campaigns***

#### **Massachusetts Bay Transport Authority (MBTA), USA**

In 2008 the Massachusetts Bay Transportation Authority Police (MBTAP) were accused by the press of not doing enough to tackle sexual assault on public transport. In response, the MBTA co-produced an anti-harassment advertising campaign with Rape Crisis (Twyford, 2013). They launched a public awareness campaign – using large scale posters across the transport network (see Image 1) – to encourage victims to report incidents to the police, emphasising that certain behaviour was not acceptable and would be treated seriously by the authorities. In 2013, the campaign was revived after numerous reports of indecent exposure and public masturbation on trains. The new posters, which were displayed on trains and buses, featured photographs of both men and women holding up their hands, pointing at offenders, and crossing their arms (Rousseau, 2013). Slogans on the posters included messages such as: *'Respect my space,' 'Keep your hands off me,'* and *'No means no.'* One poster, with the slogan *'Keep your privates private,'* carried a warning against public exposure: *'Want the whole world to see you? No problem. I can snap your photo with my See Something, Say Something app and send it to Transit Police'* (see Section 6 for more information about phone apps).

#### **Lambeth Council, London, England**

A campaign called *'Know the Difference'* targeted men's behaviour and attitudes towards women and unwanted sexual behaviour and offences (Twyford, 2013). Aimed at street harassment generally, posters and advertisements were prominently displayed at tube stations and bus stops, in addition to clubs, pubs, and men's toilets. Such posters had different headlines – for example: *'Back to Mine. Back Off', 'Get it On. Get off Me', 'Flirt. Harass', 'Harmless Fun. Sexual Assault'*<sup>15</sup> – followed by the same central message: *'Real Men Know the Difference. And so does the Law'*. At the bottom of each poster, it read:

*'Rape and sexual assault are crimes. Sex without consent is rape. If convicted you could face up to life imprisonment as well as being placed on the Sex Offenders Register. One night out could lead to a criminal record for life, losing your job and respect from your friends and family.'*

The campaign won the silver award in the best community safety campaign category at the Local Government Communications Reputation awards and was adopted by the British Army.

#### **Brussels, Belgium**

In Belgium, in 2012, an anti-harassment campaign, supported by local government agencies in Brussels, was launched with the slogan: *'Touche Pas à Ma Pote!'* (*'Don't Touch my Girl Friend'*). The campaign included posters with images of big yellow hands with the message written on them in pink which were posted on trams for six months (Kearl, 2012a). The images were also featured on the outside of pink subway doors and men and women even wrote the slogan on the palms of their hands.

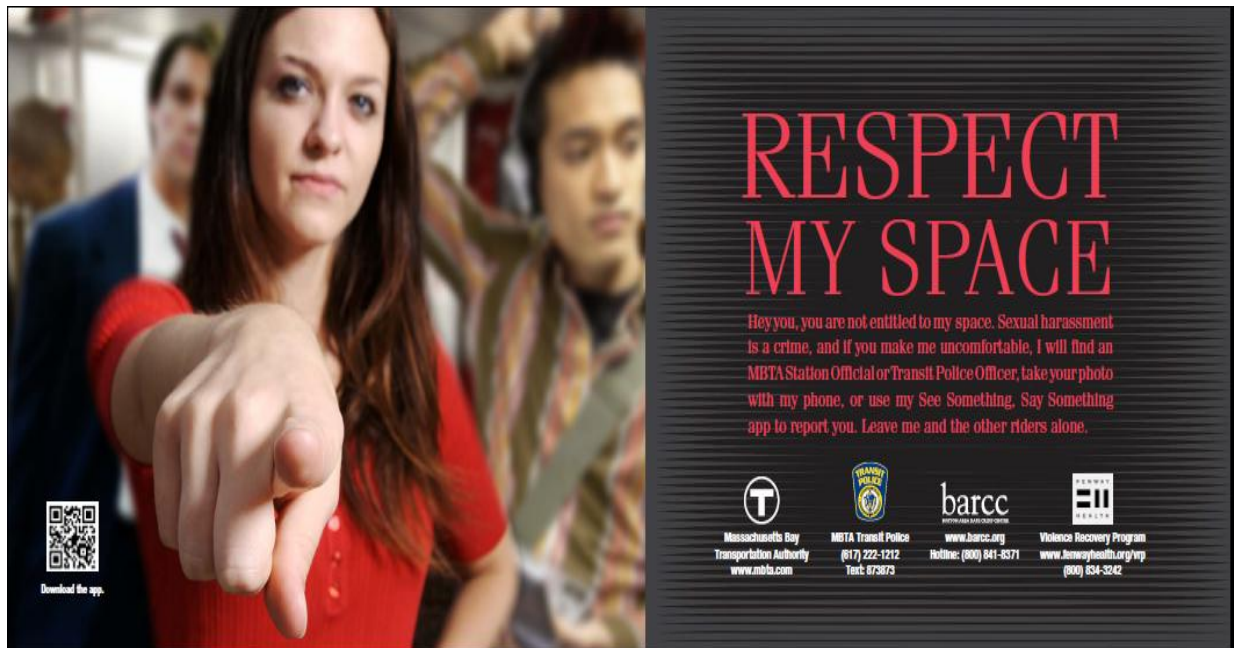
#### **Mexico City, Mexico**

As part of Mexico City's wider initiative to change women's mobility, INMUJERES – the federal institute for gender equality and equal opportunities for women – started to run advertising campaigns throughout the city. As well as posters, they made use of billboards and bumper stickers, all of which read: *'It is our right to travel without fear'*. Below the slogan, a free 24 hour hotline number to report harassment was displayed.

For other examples see: Lambrick and Rainero (2010) Rosario, Argentina; and Kabak (2008) New York City, USA.

<sup>15</sup> <http://lambeth.gov.uk/sites/default/files/sc-kt-d-campaign-posters.pdf>

*Image 1: Poster from the Massachusetts Bay Transport Authority advertising campaign*



An evaluation of an anti-harassment advertising campaign was conducted by the MBTA who released figures indicating that:

- In the four years after the launch of the campaign, the number of sex offences reported on the MBTA increased by 32%
- In the four years after the launch of the campaign, the number of arrests for sex offences increased by 96%
- In the four years before the campaign, 35% of all sex offences on the MBTA were cleared from police books following an arrest
- In the four years after the campaign, just over half (52%) of all sex offences resulted in an arrest.

Twyford (2013) concluded that, 'the action can be taken as a resounding success, the public response to the campaign was positive and the campaign was nominated and successful in awards' (p12).

For campaigns to be successful it is essential that their design be strongly grounded in research about effective messages for both men and women. They may compound the

problem rather than help to resolve it, if they are not. This may happen in campaigns which are perceived to implicitly or explicitly blame or shame women for sexual harassment and assault, effectively re-victimising them. Campaigns of this nature have been seen in Iran (Megginson, 2013), Singapore (Huffington, 2012), and Vancouver, Canada (Metro Vancouver Transit Police, 2015). Partly in order to avoid such issues, TfL have recently engaged in extensive customer consultation and are currently working with M&C Saatchi towards developing a strategy to encourage the reporting of unwanted sexual behaviour on public transport (Transport for London, 2014b).

#### **4.1 Summary**

The research considered above suggests that advertising campaigns aimed at raising public awareness about sexual harassment and assault, and campaigns aimed at encouraging reporting, may be promising interventions. Good examples in this area are campaigns such as those by the MBTA and Lambeth Council. However, it is imperative that all campaigns be carefully designed and grounded in community consultation with women, in order that they do not reinforce negative stereotypes or blame victims.

### **5. Raising awareness: Grassroots/community action**

There are an increasing number of grassroots community initiatives that aim to reduce the street harassment of women through raising public awareness about the issue. Such initiatives are taking place all over the world, including in: Afghanistan, Australia, Azerbaijan, Belgium, Canada, China, Egypt, Germany, India, Israel, Istanbul, Lebanon, Malawi, Myanmar, Peru, Russia, Sri Lanka, South Africa, Yemen, Pakistan, the UK and the USA (see Kearn, 2012a, for an overview). Here the focus is on the campaigns that are either aimed directly at sexual harassment on public transport or which encompass it alongside street harassment. Table 8 (Appendix H) gives an overview of these international initiatives.

In Sri Lanka in 2012, hundreds of specially trained young men boarded buses to talk to people about the issue of sexual harassment on public transport (Regina, 2012). Over the space of one week over 1,000 buses were boarded and the trainees were able to reach over



30,000 commuters in Colombo. In Myanmar in February 2012, the ‘whistle for help’ campaign was launched advising women to literally blow the whistle on sexual harassment (Kearl, 2012a). To this end, every Tuesday morning, 150 volunteers wearing distinctive purple t-shirts with a big picture of a whistle distributed leaflets and whistles at eight busy bus stops in Yangon (Thein, 2012). Both of these campaigns were reported to have been received very positively by the public who were keen to engage with the volunteers (Kearl, 2012a).

In Paris in November 2014, the feminist group Osez le Feminisme (Dare Feminism) launched a campaign to Take Back the Metro, handing out leaflets and putting up posters on trains with anti-harassment pictures and messages (Warren, 2014). One read: ‘*Warning! Do not put your hand on my ass, or you could get slapped very hard!*’ The group hoped that the campaign would raise awareness about sexual harassment on public transport and symbolically reclaim the space. Similarly in Bogota, Columbia, in 2008, women moved throughout the transport system with handheld signs with messages about respecting women (Lambrick & Rainero, 2010).

Some organisations also engage in community outreach work. HarassMap, in Egypt, is a volunteer lead initiative which aims to change the social acceptability of harassment in public spaces. The organisation has 1,500 volunteers who go out and engage with a diverse range of people on the streets. The volunteers appeal to them to bring back old Egyptian values by standing up to incidents of sexual harassment when they witness them<sup>16</sup>, thereby directly challenging a culture of tolerance or apathy. In the future, the project plans to expand beyond the streets to restaurants, shopping malls and public transportation.

Community action may also come in the form of public rallies, demonstrations, and marches. Examples of these are the *Reclaim the Night* marches, which began in 1977<sup>17</sup>, and the more recent *SlutWalks*, which have now been held in over 200 countries<sup>18</sup>. Some public protests and demonstrations may also take place in response to a particular incident. For example, after the brutal gang-rape and murder of Jyoti Singh on a bus in New Delhi in 2012

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<sup>16</sup> <https://tavaana.org/en/content/taking-back-egypts-streets-harassmap-campaign-end-sexual-harassment>

<sup>17</sup> <http://www.reclaimthenight.co.uk/why.html>

<sup>18</sup> <http://www.slutwalktoronto.com/about/how>

thousands of people across India took to the streets calling for an end to all forms of sexual violence and demanding that the government take action (Majumder, 2012). Similarly, in South Africa, after two teenage girls were groped and sexually harassed by a group of 50-60 men at a taxi rank, around 3,000 people marched through Johannesburg in protest against sexual harassment (Kearl, 2012a). In addition to raising awareness and making a public protest against such issues, it is thought that demonstrations may put pressure on governments to make legislative change.

## 5.1 Summary

Although this REA did not identify any systematic evaluations of grassroots initiatives, these may be assessed in a variety of ways. If successful they may raise awareness about the issue of sexual harassment and assault on public transport; disseminate information; start or revive public debate; empower communities; and even bring about legislative change.

## 6. New technology: The Internet and Smartphone Apps

New technologies, including user generated web material and smartphone apps, have emerged as novel and interesting methods of addressing sexual harassment and assault on public transport. They may be used, for example, to:

- report (non-emergency) crime to the police
- collect and analyse data on the problem
- help identify crime hotspots
- track journeys
- take pictures of perpetrators or incidents
- raise awareness about the problem through online platforms and forums
- and engage the wider public in a conversation about the topic.

Table 9 (Appendix I) gives an overview of some of the online platforms/smartphone apps available for women to share their experiences of sexual harassment and offences on public transport. These platforms and projects can give women an outlet to express their feelings

and validate their experiences (TfL, 2013a). Collectively, accounts of such experiences are intended to help to engage the public in a conversation about the topic; highlight the scale of the issue; inspire people to take action; empower those who have been victims; build a grassroots movement to end such behaviour; and contribute to legislative change (Hollaback! 2013<sup>19</sup>).

However, measuring the success of such online platforms is not unproblematic as initiatives of this kind would not necessarily be expected to have a short-term impact on reducing unwanted sexual behaviours. What can be garnered, however, are data to gain some idea of how many people and from which demographic sectors the tools are reaching and potentially helping. Where available these figures are provided in the evaluation column of Table 9. However, as noted by *The Blank Noise Project* in India, these may underestimate how many people these platforms are reaching as they do not take into account ‘how many men and women took the conversations from the internet to their personal lives, to their home and friends’ (Patheja, 2010)<sup>20</sup>.

An example of such an online platform is *The Everyday Sexism Project*, which was set up by Laura Bates in England in 2012 ‘to catalogue instances of sexism experienced by women on a day to day basis’<sup>21</sup>. Women can share their experiences online via the website, Twitter or email and Bates says that, of the 25,000 stories that they have had so far, around 5,000 relate to public transport with behaviours ranging ‘from unwanted sexual comments and demands to groping and public masturbation, from being followed and harassed to being photographed against their will’ (Bates, quoted in Lo, 2013, p2). In India in 2006 a ‘blogathan’ conducted by *The Blank Noise Project* – a volunteer led collective to address street harassment, also known as ‘eve-teasing’ – led to ‘a mass online catharsis’ in which people shared their experiences (Patheja, 2014).

Initially US-based, *Hollaback!* is now a worldwide movement to end street harassment, encouraging those who have experienced or witnessed harassment to share their story on the website or via a smartphone app. Users can describe what they experienced or saw; the

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<sup>19</sup> <http://www.ihollaback.org/blog/2013/08/22/questions-about-our-nyc-app-the-faq-is-here/>

<sup>20</sup> <http://www.indiasocial.in/case-study-blank-noise/>

<sup>21</sup> <http://www.everydaysexism.com/>

type of harassment encountered; where the incident occurred and upload photos<sup>22</sup>. These stories are then available for people to read online. In Egypt, HarassMap uses crowdsourcing or collective intelligence, allowing victims and witnesses to record stories of sexual harassment online. These are collated and displayed on an online map thereby allowing anyone to see where these crimes have been occurring (Fahmy et al., 2014). In its first year, the HarassMap website had 88,851 visits, 76,211 visitors, and 239,821 page views (Gad & Hassan, 2012).

In India several smartphone safety apps are also available and more are in the development stage (see Table 9). For example, in 2013 the government was reportedly in the process of launching a pilot project to test out a ‘panic button’ app – to be pre-installed on all basic models of phones – which would allow women to raise the alarm in an emergency situation (Kumar-Dash, 2013). An app tentatively called ‘Tell Tale’ is also being developed to track vehicles, which can be used by connecting to the GPS network on-board (Cave, 2014). Finally an app called SafetiPin<sup>23</sup> has a safety tracker which acts as a ‘personal guardian’, using GPS navigation to allow the tracking of a person who has turned their ‘Track Me’ button on.

Mobile phone apps and text numbers are also increasingly being used to report non-emergency crimes and incidents of unwanted sexual behaviour on public transport. Details of such initiatives and their associated evaluations are laid out in Table 10 (Appendix J).

The MBTA has introduced the ‘See Say’ smartphone app, which enables passengers to easily, quickly, and discreetly report details of any suspicious activity (using both text and pictures) to the Transit Police<sup>24</sup>. In 2014, Metro Vancouver Transit Police in Canada launched their ‘See Something, Say Something’ campaign, where passengers can make reports via a phone app or a text message which is received 24/7 by dispatchers who can respond appropriately (TransLink, 2015).

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<sup>22</sup> <http://www.ihollaback.org/blog/2013/08/22/questions-about-our-nyc-app-the-faq-is-here/>

<sup>23</sup> <http://safetipin.com/>

<sup>24</sup> [http://www.mbtta.com/about\\_the\\_mbtta/news\\_events/?id=24872&month=&year=](http://www.mbtta.com/about_the_mbtta/news_events/?id=24872&month=&year=)

In Britain, Project Guardian has a text number for passengers to report unwanted sexual behaviour on the railway network (Project Guardian, 2013). The crime prevention charity Witness Confident has also developed an app called Self Evident which lets users report crimes to the police (Witness Confident, 2014). This has the added advantage that victims can keep a record of the report themselves, making the police more accountable.

Reporting apps are being treated by the police with cautious optimism. Before and after figures of crime recorded by Metro Vancouver Transit Police saw a 28% increase in reporting since the launch of the initiative (Talbot, 2014, personal communication). A 'customer satisfaction survey' by Witness Confident (2014) of the experiences of the first 100 users of the UK Self Evident app who made crime reports, found that more than nine out of ten recommended the app (Witness Confident, 2014). However, there has been some concern expressed over users of phone apps taking pictures of their harassers as there is the danger that this could escalate the incident (Gold, 2006).

## 6.1 Summary

Using new technology to reduce sexual harassment and offending on public transport is still in its infancy and we have yet to realise the full extent of its capacities. Whilst there is little evaluative evidence there has been tentative early evidence of the success of Vancouver's 'See Something, Say Something' reporting app and text service in increasing reporting. Furthermore, the number of reports submitted and page view statistics indicate growing popularity for online platforms for women to share their experiences. However, caution still needs to be exercised in some areas, such as whether women should attempt to take photographs of their harasser.

## 7. Women-only transportation

In an attempt to reduce sexual offending and to help make women feel safer when travelling some countries have introduced women-only spaces on public transport including women-only carriages on trains and subways, and buses which only allow women on board. Since the introduction of women-only carriages in peak times on the Mexico City subway in

1978 similar schemes have been introduced in countries such as Brazil, Egypt, India, Indonesia, Iran, Japan, Malaysia, Russia, South Korea, Taiwan, Thailand, the Philippines, and the United Arab Emirates (Horii & Burgess, 2012; Joyce, 2005; Peters, 2001). These initiatives, Horii and Burgess (2012) observe, have largely been introduced in 'societies where the public realm is dominated by men in order to provide women with a secure means of public transport, free from sexual interference' (p52).

Women-only public transportation schemes may operate some or all of the time (Loukaitou-Sideris et al., 2009). For example, they may apply in morning and evening rush hours only, when trains are likely to be very crowded. Conversely, the restrictions may apply late at night, when carriages may be isolated or have male passengers who have drunk too much. The rail/subway carriages are typically clearly marked with a different colour or have large stickers or signs 'to make sure that they are visible even to absent-minded male passengers' (Loukaitou-Sideris et al., 2009, p46). In places such as Mexico City station guards also segregate the sexes on the platforms (McGirk, 2000), and in Tokyo any man who tries to enter a women-only carriage is ushered away by station officials (Joyce, 2005).

There are similar initiatives running on buses worldwide. However, unlike on trains such schemes tend to apply to whole buses rather than sections of them. Buses are typically bright colours - often pink - have prominent signs, and many aim to have female crews. Examples of cities/countries with women-only buses include Dhaka, Bangladesh; Kuala Lumpur, Malaysia; Mexico City; and Nepal (Dunckel-Graglia, 2013a&b; Mahmud, 2014; New Straits Times, 2010; Peters, 2001; Rahman, 2010). Mexico City, for example, has a separate transit line for women – 'Athena' – in honour of the Greek goddess of war, courage and independence. All buses are bubble-gum pink in colour and pay tribute to a historical, revolutionary woman who is painted on the side (Dunckel-Graglia, 2013b).

Although there are a lack of evaluations which assess the effectiveness of women-only transport on reducing sexual harassment and offending it was reported that the sex-segregation initiative, as part of the Viajemos Seguras ('Women Traveling Safely') programme in 2008 in Mexico City, succeeded in reducing the number of sexual harassment cases from five to one per day (Forde, 2013). Furthermore, research that has explored

women's perceptions of the success of women-only transport has found very positive attitudes in some countries, although mixed responses exist in other countries where they are set in the context of women's freedoms and normative status (Loukaitou-Sideris, 2014). Table 11 (Appendix K) summarises the key evidence in support of, and against, women-only transportation.

Some research has found that women are very positive about these schemes, both in theory and practice. The Thompson Reuters Foundation and YouGov conducted a poll in 2014 which surveyed 6,300 women in 15 of the world's biggest capital cities, amounting to approximately 400 women per city. Overall, around seven in ten said that they would feel safer in single-sex areas on buses and trains; specifically, 45% of women in London said they would feel more secure in sex-segregated transport. In Rio de Janeiro, an online survey of 2,288 newspaper readers found that nearly two thirds approved of women-only carriages (de Oliveira, 2006). Similarly, research with women in Pune, India, and Dhaka, Bangladesh found that women-only carriages on commuter trains were very popular (Atrop, 1996, cited in Peters, 2001). In Mexico City, two thirds of 116 women surveyed thought that women-only transport was safer (Dunckel-Graglia, 2013a). In Japan, some women have reported feeling safer and men have welcomed not having to worry about false allegations of assault (Joyce, 2005), and over half of 155 Japanese women interviewed would like to see more women-only carriages (Horii & Burgess, 2012).

However, there have also been reservations expressed by women, men and transport operators about women-only transport. In Japan some women worry that if they use a mixed carriage they will be viewed as 'willing' victims, and men complain that the remaining carriages become even more overcrowded (McGirk, 2000). In Pune, India, only 2% of women thought that single-sex buses were a good idea, wanting extra buses for everyone to reduce overcrowding (Atrop, 1996, cited in Peters, 2001). In Mexico City, men's opinions of women-only transportation were very negative, seeing the idea as 'a bit of a joke' or even as 'disgusting' (Dunckel-Graglia, 2013a, p95). In the US, train operators have reported fear of being accused of 'reverse discrimination' if they adopt such schemes (Loukaitou-Sideris & Fink, 2009).

Perhaps the major argument against women-only transport is that ‘women-only carriages represent the assumption that women can be secured only through confinement’ (Horii & Burgess, 2012, p45). In Sao Paulo, Brazil, women have voiced concerns about ‘the pink train’, arguing that they should be free to feel safe in public (Grant, 2014). In Bogota, Columbia, women-only transport was seen by some women as a superficial fix which did not address men’s behaviour (Jaramillo, 2014). While in Rio de Janeiro, some women were reported as saying that such measures were palliative and that education is the key (de Oliveira, 2006).

In Great Britain, public transport currently has no provisions for women-only spaces and any suggestions that this method should be implemented have invariably produced a strong backlash in some factions of the media and amongst women’s groups. Monique Villa, CEO of the Thompson Reuters Foundation, and Laura Bates, founder of The Everyday Sexism Project, recently argued that women-only carriages fail to tackle the root cause of the problem – namely, attitudes towards women and sexual discrimination – and that we should tackle the behaviour of perpetrators rather than segregating women and limiting their freedom (Villa & Bates, 2014). Thus, it is widely thought that the adoption of such a scheme would be a retrograde step in Great Britain, which could be thought of as insulting, patronising and shaming to both men and women (Grant, 2014).

## **7.1 Summary**

Women-only public transport has been found to be popular with some women, depending in part on their country, culture, and the extent of gender inequality that exists in these two remits which can lead to very high rates of sexual harassment and assault. However, implementing these schemes in countries with more progressive attitudes towards gender equality and the place of women in society is believed by many to be a regressive move.

## **8. Other initiatives**

The initiatives considered in detail in the preceding sections are those that the evidence suggests are the most prominent and highly rated. However, this REA also identified a



number of other measures and methods which are important to include. The comparative lack of detail afforded here is due to various reasons, including a lack of direct specificity to sexual offending and public transport; insufficient information on particular initiatives being employed; and/or a dearth of knowledge when it comes to evaluating whether these 'work'.

### **8.1 Good maintenance of transport and facilities**

The 'broken windows theory' (Wilson & Kelling, 1982) argues that signs of disorder make people feel unsafe: when an environment appears neglected it can become a good place to commit crime, which may escalate fast (Yavuz & Welsh, 2010). Women in particular may report that areas in which there is graffiti and vandalism feel unsafe (Lawlink, 1999) and that general maintenance of public transport is important in creating feelings of security, encouraging positive behaviour and discouraging crime (Loukaitou-Sideris, 2014). Research has found that good maintenance and upkeep of the physical environment can reduce crime (Loukaitou-Sideris, 2005). The Washington DC Metro is often cited as an example of good practice, being clean and graffiti-free (Loukaitou-Sideris et al., 2009; Schulz & Gilbert, 1996).

### **8.2 Emergency/alarm/panic buttons or phones**

Some public transport systems now employ alarms, panic buttons or strips on-board vehicles or at transport hubs, and phones at stations and on platforms which can be used in the event of an emergency. Loukaitou-Sideris and Fink (2009) found that 76% of respondents from transit agencies in the US reported having alarm buttons on buses, while approximately 45% had them on trains, nearly 40% on train stations/platforms and just fewer than 10% had them at exits and entrances. In Canada, the Vancouver Metro has an emergency yellow strip above each window which can be pressed by passengers to trigger a silent alarm and a staff member will come to their aid (Battered Women's Support Services, 2014). The trains also have emergency speaker phones and there are emergency cabinets on all platforms.

Some research has found that passengers rate emergency alarms and phones as being very important in making them feel safer. In Michigan, USA, bus passengers rated both measures

to be in their top three, of a possible seven, ‘transit safety enhancements’ on buses and at bus stops (Reed et al., 2007, p133). In New Zealand, emergency alarms were rated as the second most effective measure, after lighting at bus stops and security patrols on train stations, in enhancing feelings of personal security (Kennedy, 2008). However, some passengers have also said that they do not have proper information about how to use them or what response to expect (Stafford & Pettersson, 2004). They may also not be properly marked, not be placed at inconvenient locations, or not work (Stringer, 2007).

### **8.3 Dedicated spaces at transport hubs for reporting sexual harassment and assault**

In Mexico, the Viajemos Seguras (We Women Travel Safe) initiative – implemented in 2008 – incorporated measures to ‘give women a safe place where they can confidentially report sexual harassment and violence in public transportation’ (Dunckel-Graglia, 2013b, p269). Five offices staffed by female officers in the most crowded subway stations in Mexico City were dedicated to this purpose. The officers all received special training in how to make women feel comfortable reporting the offence, refer them on to medical and psychological services and help them with the criminal justice process. The offices are open on weekdays from 08:00 until 20:00.

### **8.4 Hotlines to report sexual harassment and offences**

Telephone hotlines to report sexual harassment and assault on public transport have been implemented, or are being considered, in various places. These hotlines allow passengers to report crimes in a hassle-free way, at a time which is convenient to them, without interrupting their journey. They also allow transport police to collect more data and therefore improve their understanding of sexual offences on public transport (Stringer, 2007). In Mexico, the Viajemos Seguras initiative already has a 24-hour hotline for women to report sexual harassment and assault, the number for which is advertised widely throughout the transport system (Dunckel-Graglia, 2013b). In London, Project Guardian has a text facility as well as a freephone number that passengers can ring to report offences (Project Guardian, 2013). The use of similar hotline initiatives has also recently been suggested in India (Verma et al., 2013) and Azerbaijan (Jafarova et al., 2014).

## 8.5 Request stops on buses

It has consistently been recommended (e.g. Duchene, 2011; Villa & Bates, 2014) that bus companies run what are usually referred to in the literature as ‘request stops’. These are schemes where passengers can get on and off buses closer to their destination or starting point, early in the morning or late at night when they may be more afraid of being, or more likely to be, victimised (e.g. Lambrick & Rainero, 2010)<sup>25</sup>. Such initiatives have been and are currently being used in places such as Montreal (Birdsall, Ibrahim & Gupta, 2004), parts of the USA (Schulz & Gilbert, 1996), and Auckland, New Zealand (Kennedy, 2008).

## 8.6 Real-time electronic scheduling information at bus stops and rail networks

Electronic real-time scheduling information, which is prominently displayed, can give women a sense of security at transport hubs as they know exactly how long they have to wait before their bus or train arrives. This information was highly rated by one participant in Loukaitou-Sideris’ (2014) study for ‘predictability, reliability and efficiency, and to reduce extended waiting’ (p251). Focus group participants in New Zealand also said that they would like to see real-time information at bus stops and train stations, much like that which was already being provided at some bus stops in central Auckland (Kennedy, 2008). In recognition of the importance of this, the Real Time Information (RTI) Initiative was one of the schemes set out in TfL’s Women’s Action Plan in 2004 (cited in Loukaitou-Sideris, 2009). Around 2,500 bus stops in London now have RTI and passengers can also check bus arrival times by text and smart-phone with their bus stop code<sup>26</sup>.

## 8.7 Women-only taxi/mini-cab firms

Some women opt to take taxis/mini-cabs rather than public transport as they believe them to be safer. However, a study which looked at rape in public outdoor spaces in Stockholm, Sweden, found that comparatively more rapes took place in these than on public transport (Ceccato, Beshagi & Wiebe, in progress). Although taxis are beyond the scope of this review,

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<sup>25</sup> These are not to be confused with the ‘request stops’ that currently run on British buses, which are fixed stops that are not automatically stopped at. Rather, the driver will stop at them if a passenger signals them from the road or a passenger on-board alerts them.

<sup>26</sup> <http://www.tfl.gov.uk/modes/buses/live-bus-arrivals>

the recent increase in women-only taxi firms may provide an alternative, safer, means to both public transport and taxis/mini-cabs driven by male drivers, particularly when they are unlicensed. Firms of this kind have been set up across the world in recent years: in Kuala Lumpur, Malaysia, women-only taxis were launched in 2011 on an on-call basis (AFP, 2011), and Mexico City has a fleet of pink taxis driven by women who stop only for women (Dunckel-Graglia, 2013a).

Examples of women-only taxi firms in Britain are *Ladies Only Travel* in Bradford, *The Taxi Ladies* in Long Eaton, *London Lady Chauffeurs*, and *The Pink Ladies* in Warrington. These firms operate in different ways: some employ drivers of both sexes but offer female drivers for female passengers, some employ only female drivers and pick up only female passengers (Harrison, 2012), others employ only female drivers but accept passengers of both sexes, and some will take couples. *The Pink Ladies* also employ female 'driver-carers' who ensure that their female passengers are safely inside their destination before leaving.

#### **8.8 Legislative change: harsher punishment for offenders**

Various countries have introduced harsher punishments for those who commit sexual offences on public transport. For instance, in Mexico City, sexual harassment on public transport used to be a non-discriminatory misdemeanour (like pickpocketing). However, after INMUJERES (the Mexican federal institute for gender equality and equal opportunities for women) lobbied policy-makers, violence against women on public transport was established as a form of institutionalised gender discrimination which denied women equal access to the city's resources (Dunckel-Graglia, 2013a). In Japan, penalties for 'groping' on public transport – which were traditionally lenient – were toughened in response to the persistent problem, making these actions punishable by up to seven years in prison (Lewis, 2004). In India, after a series of assaults including the rape and murder of Jyoti Singh on a Delhi bus in 2012, it was recommended that various changes be made to the law, such as full life imprisonment for particularly brutal rapes such as those committed by gangs (Verma et al., 2013), most of which were subsequently implemented. In England and Wales, partly as a consequence of consultations with Project Guardian, the Sentencing Council now gives greater weight to offences that take place on public transport which is now viewed as an

aggravating factor since victims are unable to remove themselves from the situation due to spaces being enclosed and movement restricted.

### **8.9 Enhanced data collection methods**

As noted by Stringer (2007): ‘inefficiencies in the collection and provision of crime data are a key impediment to better crime and safety management’ (p17), for example data on sexual harassment and assault on public transport, are sometimes not disaggregated, falling within other ‘umbrella’ categories (e.g. felony assault). In Britain there is no current means of recording incidents such as lewd or sexual comments (Twyford, 2013), and yet precise categorising and recording of the types of incidents that can occur is vital to obtaining the ‘bigger picture’ of sexual harassment and offending on public transport, as well as to developing targeted interventions. It has also been argued that this data should be available to the public, to empower them ‘to tailor their transit behaviour in a way that maximizes their personal safety’. This is currently done in some US cities where the city transit authorities publish police data on their websites (Stringer, 2007, p18).

### **8.10 Incorporating women’s voices and views into transport services**

Internationally the transport sector and the services, planning, design and implementation of transport initiatives is overwhelmingly a male domain (Duchene, 2011; Loukaitou-Sideris et al., 2009; Rivera, 2007). However, it is increasingly recognised that certain vulnerable groups have distinct requirements in using public transport and the need for their input into the process has become apparent. Women’s views on these matters should be solicited through consultation. More women also need to be recruited to work in transport agencies in every area, from design through to delivery (Rivera, 2007). To this end, increasing the number of female employees was one of the four goals of TfL’s Women’s Action Plan (2004) which aimed to raise the percentage of female workers from 22% to 52% to reflect London’s population (Loukaitou-Sideris, 2009).

Another way of involving women in the development of gender-sensitive public transport is by increasing their capacity to conduct ‘safety audits’ or ‘visual audits’. These are ways to

record and rate various physical and social factors that may make people feel unsafe in specific locations, including on and around public transport (Loukaitou-Sideris et al., 2009). This may include the presence or absence (and adequacy) of factors such as lighting, visibility, technological security measures and staffing. Recommendations based on these audits may lead to changes being made to improve safety. METRAC (Metropolitan Action Committee on Violence Against Women and Children) – a non-profit organization founded in Toronto, Canada – developed the process in 1989 and now trains community members and groups to carry out safety audits themselves. This tool has helped incorporate women into the transport planning process – establishing them as ‘safety experts’ – and empowering them to bring positive change to their communities. Safety audits may also be carried out using new technology such as the SafetiPin app developed in India<sup>27</sup>. This enables auditors to go out into public spaces and score the environment from poor to good against nine criteria. The ‘Safety Score’ feature of the app then allows users to see information about how safe certain areas are, which are represented by coloured points on a ‘heat map’.

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<sup>27</sup> <http://safetipin.com/about/whatIsSafetipin>

## Conclusions

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BTP, in collaboration with the DfT, commissioned this research to explore (a) what initiatives are being used both nationally and internationally to try to reduce unwanted sexual behaviour on public transport, and (b) ‘what works’ in this area. To this end, this research identified and considered the effectiveness of a number of initiatives which are currently being used. However, as other researchers, governments, transport agencies and police forces have observed – and as noted at the beginning of the Findings section – there is no stand-alone, single initiative that is sufficient to tackle unwanted sexual behaviour on public transport. Instead, a multifaceted approach, using a co-ordinated package of complementary initiatives, is the most effective means of tackling this problem (e.g. Yavuz & Welch, 2010). These broadly include, but are not limited to, the following items presented below in descending order of evaluated and/or perceived effectiveness:

- **Increased surveillance** in the form of extra transport staffing and police (both uniformed and plain clothes), as well as technological surveillance such as CCTV
- **Crime prevention through environmental design (CPTED)** measures such as increased visibility, lighting, alarms, phones, and good maintenance of transport facilities
- **Alternative means of reporting** such as the use of hotlines, texting, and phone apps
- **Awareness campaigns** through advertising, grassroots action, and online platforms
- **New technology** such as smartphone apps to report incidents, track passengers, record experiences, and create maps with hotspots of offending.

The evidence regarding the introduction of women-only transport, such as carriages on trains or women-only buses, is complex. Evidence from studies reviewed in this report in countries that have particularly high rates of sexual harassment and offending on public transport suggests that these measures are very popular with women travellers. There is also some evidence that they do lead to a reduction in the incidence of sexual harassment and assault. However, there are also strong arguments made in the literature against the

implementation of these initiatives – primarily that women-only transport does not address the underlying issues and is a superficial fix to a much deeper problem.

All of these initiatives, with the exception of women-only transport, are used in Britain in some form. Project Guardian, a long-term strategy from BTP, TfL, Metropolitan Police, and the City of London Police, is the example most often referred to throughout this report. It incorporates many of the initiatives listed above and more which are presented in Textbox 2. Two other examples of good practice have also been identified and are summarised in Textboxes 3 and 4 from the Metro Vancouver Transit Police in Canada and the New York City Police Department Transit Bureau in the US<sup>28</sup>.

### *Textbox 2: London, UK: Project Guardian*

- The deployment of over 2,000 specially trained police officers and police community support officers (PCSOs) to patrol London's transport network;
- Teams of specialist officers to target 'hot spots' of sexual offending and look out for suspicious behaviour;
- CCTV to help deter, target, and detect offenders;
- Concerted 'weeks of action' where officers are deployed to talk to the public, gather intelligence, make arrests, and execute outstanding warrants;
- A training package for all frontline BTP and Meropolitan Police officers, to ensure that victims receive the best possible service and treatment;
- Teams of specialist detectives in charge of investigating cases, providing victims with a high level of care and making it more likely that offenders are caught;
- Community engagement to inform and educate the public, such as local policing teams giving talks to colleges, transport hubs, and community groups;
- Special initiatives for school children, using an engaging lesson and interactive stage production to educate children about the issues involved;
- Preventative measures such as offender management plans for those who are judged to be high risk, as scored against set criteria on a Prioritisation Matrix;
- Leafletting by police officers who are available to talk to the public;
- Consultation and research to develop appropriate advertising campaigns;
- Hotline and SMS text reporting numbers to make reporting easier;
- Extensive media involvement to get across the campaign's messages, appeal for information, and give information about successful prosecutions;
- Social media campaigns, such as the hashtag campaign: #projguardian;
- National and international media interviews with Project Guardian managers;
- The development of Global Guardian – hashtag #GlobalGuardian –an extension of Project Guardian into North America and Canada.

**Source: Wick, 2014, personal communication.**

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<sup>28</sup> The initiatives presented in these textboxes have not been formally, independently evaluated and the terminology and language used are from the projects themselves.



### *Textbox 3: New York, USA: NYPD Transit Bureau initiatives:*

- Deploy uniform/plain clothes personnel to known problematic areas, specific stations, and train lines where sex offenders frequent based on analysis of criminal complaints and arrests;
- Utilize video surveillance cameras to ID the perpetrator and create/distribute wanted posters;
- Supervisors instructed to thoroughly review complaint reports and ensure a thorough account of the incident is documented in the narrative of the report;
- Have victim interviewed by a member of the Detective Squad;
- Notify investigator from Special Victims Division for enhancement of case;
- Executive level conferral with District Attorney's office from arrest through court proceedings – seeking the highest penalty and ensuring successful prosecution;
- Enhanced training with Transit Bureau memorandum, instructing Police Officers on how to enhance sex offenses;
- The Transit Bureau has implemented the use of a victim's "Statement of Allegation" document which enhances the arrest and creates a timely 1st person response to the crime;
- Work closely with victim's advocacy groups; and
- Monitor known sex offenders / recidivists.

**Source: NYPD Transit Bureau, n.d.**

### *Textbox 4: Vancouver, Canada: Metro Vancouver Transit Police*

- System wide CCTV on trains, platforms and buses;
- Designated Waiting Areas covered by specific CCTV and including emergency phones on all train platforms;
- Silent alarms and intercoms available on all trains;
- Real time scheduling information designed and optimized for mobile use;
- Police input by Crime Prevention Through Environmental Design trained staff into design of new and upgraded facilities;
- Web based safety videos and advice to transit users;
- Proactive use of Social Media to provide safety advice;
- Police input into operating company staff orientation processes for education/awareness;
- Police presentations to vulnerable community groups for system orientation and safety advice;
- Leveraging of input into police planning from community groups representing vulnerable populations;
- Prolific Offender Management program proactively monitoring those at elevated risk of offending;
- Introduction and promotion of SMS Texting and smartphone App for better connectivity with transit users;
- Marketing campaigns supporting awareness and safety;
- Sexual Offending designated as one of four Operational Policing priorities;
- Proactive monitoring of Social Media to monitor reports of potential offences;
- Continued research partnerships with third parties exploring opportunities to enhance audience reach and messaging.

## Recommendations

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1. Project Guardian in London, England, incorporates many of the initiatives reviewed in this report and more. In this sense, it is arguably one of the most comprehensive programmes aimed at reducing unwanted sexual behaviour on public transport in the world. However, given that it has not been formally evaluated, we are unable to say whether it has achieved many of its stated aims. We therefore recommend that an evaluation of the project is carried out either before, or alongside, the programme being rolled out nationwide.
2. In an economic and political environment where financial constraints are a reality, transport agencies and police must frequently consider cutting costs through actions such as reducing staff numbers; particularly with the development of automated fare collection systems and CCTV. However, although the existing evidence base is limited and further evaluations are needed to assess whether more staff lead to better outcomes, visible staffing is consistently rated by women as one of the most desirable measures in reducing unwanted sexual offending. Some initiatives in Britain – such as Project Guardian and the employment of Rail Community Officers by South West trains – clearly recognise the potential value of extra staffing, having substantially added to staff and police numbers.
3. Transport agencies and police should take into account passengers' concerns about CCTV, with best practice involving cameras being locally monitored 24/7 and rapid responses to observed incidents. More reliable evidence is urgently needed as to the effectiveness of CCTV, using randomised control trials. This would allow the comparison of rates of sexual offences before and after the introduction of CCTV in targeted areas. The rates of sexual offending should also be assessed at the same time in areas matched for characteristics such as population and transport type. Such comparison regions would provide further evidence as to whether any observed effects on sexual offending in the targeted area are due to CCTV or reflect a more general trend.

4. Prominent messages should be posted throughout transport networks, telling passengers how and where CCTV is being used, as well as giving examples of cases in which offenders have been identified and prosecuted through CCTV images. This not only reassures the public that the cameras do work and serve a useful purpose, but also acts as a deterrent to offenders.
5. All initiatives that aim to reduce unwanted sexual behaviour on public transport need not only to be implemented, but for the public to *know* that they are being implemented, and to know whether or not they are working. Initiatives need to be publicised and rigorously evaluated as a priority, both to act as a reassurance to passengers and deterrent to offenders.
6. Multi-agency consultation and work between transport agencies, the police, women's groups, and the wider community is needed in order to incorporate as many views as possible and encourage collaborative working in this area.
7. Personal request stop schemes on buses are frequently recommended in research yet few seem to exist. It is recommended that pilot projects be developed in certain areas to test out how workable, popular and effective these schemes would be in the UK.
8. Although women-only transport may be an effective means of reducing unwanted sexual behaviour on public transport in some countries, they are essentially 'short-term fixes' and reinforce a message that women must be contained and segregated in order to protect them. They are therefore not recommended in countries such as Britain, where they would be a retrograde step.
9. The areas immediately around public transport are often comparatively ignored when it comes to security measures, despite evidence that these may be the scenes of more serious sexual assaults and that crime may be displaced there. Transport agencies should look at widening their safety initiatives to include these.

10. More women need to be prominently involved in the (re)design and planning of transport services, as they broaden perspectives on the physical and environmental factors that can enhance women's security.

## Future research

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### **(1) Evaluating Project Guardian:**

The literature reviewed in this report indicates that multi-method interventions are the recommended approach to reducing sexual harassment and assault on public transport. Furthermore, the individual aspects of Project Guardian, such as visible and covert policing, and the text number to facilitate reporting, receive some support in the literature as means of improving actual and perceived safety, and increasing the number of reports and subsequent arrests. However, it is suggested that Project Guardian be subjected to a rigorous evaluation using a methodology that allows a comparative analysis of reporting rates, arrest rates and passenger perceptions before and after its deployment and also in comparison with a matched area where the project has not been introduced.

### **(2) Bystander/witness responses:**

More research needs to be conducted on the responses and actions of bystanders and witnesses to sexual harassment and assault on public transport. Actions may range from calling, text messaging, or otherwise alerting the authorities, physically stepping in to help the victim, trying to communicate with the offender and/or recording the incident on a mobile device for evidence. Specifically, we need to know more about how various bystander interventions may impact upon potential victims and bystanders themselves, and the possible influence on incident progression and outcomes. This knowledge could help inform transport agencies, police and other authorities in the development and dissemination of advice on what action, if any, witnesses/bystanders should take.

### **(3) Victim perpetrator interactions:**

Research should also explore the result of various victim responses to sexual harassment and assault in order to see if certain reactions are more effective, and potentially safer, than others in dealing with the problem. Victim responses may range from, for example, doing nothing, moving away, shouting for help, trying to alert staff, challenging the perpetrator and/or recording the incident. Some research of this nature was identified in the production

of this report<sup>29</sup>, mostly from developing countries such as Egypt, India and Nepal, and found conflicting evidence as to whether retaliation – both verbal and physical – deterred offenders or escalated incidents. The inconclusive evidence base may be explained by variance in the location, timing, jurisdiction and cultural differences. On the other hand, the different findings may also reflect the need to take into account both victim and perpetrator individual differences as well as the context within which such incidents and crimes occur. More in depth research could start with an analysis of anecdotal accounts posted on online platforms or through surveys and interviews with women, move on to consider CCTV evidence and that of professionals working within mass transit in general and with specific responsibility for policing and protection.

#### **(4) The male perspective:**

In countries where research into sexual harassment and assault on public transport has included surveys/interviews with men (e.g. Egypt), studies have considered, for example, whether men carry out this type of behaviour and, if so, how often, in what manner, and – perhaps most crucially – why. More work of this nature, replicated widely, could help to gain a richer understanding of the problem and develop appropriate initiatives such as advertising campaigns, mass media drama and other means of social influence designed to combat these behaviours. Publicity could also be targeted at potential perpetrators, particularly of less serious behaviours such as staring, ogling and whistling, to raise their awareness of how their behaviour could be construed. Men could also be asked (as they have been in Egypt) how they would react to various types of responses from women. This can help to inform what advice, if any, should be given to women by the authorities, and what would change both individual and general attitudes. To our knowledge, research like this with perpetrators and men in general has been very limited within the UK. We would suggest replication and contextually appropriate refinement to evaluate any initiatives implemented. This would be particularly timely given the recent policy shifts and, in part, as a response to this research.

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<sup>29</sup> Although not directly included as it was not strictly pertinent.

## **(5) Personal safety information:**

Some transport agencies and police services have issued personal safety information for women travelling on public transport, which may include sitting on an aisle, avoiding empty carriages, travelling with friends and carrying a mobile phone. We need to know more about how women perceive these messages, which may be taken as sensible precautions or be seen as placing the onus on women to protect themselves and therefore, by implication, that victims are to blame for harassment if they do not take such measures. We also need to know what the implications are of the ways in which such messages are framed, how frequently they are refreshed and whether there are implications of the modes of delivery.

## **(6) Sexual harassment of LGBTQ people on public transport:**

The vast majority of research in this area focuses on unwanted sexual behaviour by heterosexual men against women. Future research should be conducted to assess the scale, and experiences, of other groups who are potentially vulnerable to unwanted sexual behaviour on public transport. This should include the LGBTQ community, as there is some evidence that gay men and transgendered persons may also be targets of harassment. We also need better segmentation within research that assumes a heterosexual frame of reference to better consider ethnicity, age, disability and other demographics, characteristics and beliefs that affect diversity.

## **(7) Linking broader work in sexual harassment/assault:**

A large international body of research, not within the scope of this report, exists on sexual harassment/assault. The broader literature has encompassed many aspects of the causes and consequences of sexual offending for victims, perpetrators, witnesses and societies. Research is needed which brings together what is known about sexual harassment/assault more generally and considers which elements are particularly pertinent for public transport. We suggest that matters such as: alcohol, timing, context, the nature of consent, presence of others and effective methods of challenging rape-supportive cultural/normative assumptions should be central to the first wave of this research.

## **(8) Technology:**

Technology is rapidly evolving, becoming more widely available and cost effective. Much of the existing research on technology focuses on CCTV, however due to its relative novelty and the constant developments in this area little evaluative work has been carried out to date. Future research should be conducted on the variety of different ways technology can be used by transport agencies and by the general public to prevent, record and report sexual offences on public transport. We need to know more about which technologies are being used and why, how they can be used safely, as well as their effectiveness.



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## Appendices

**Appendix A: Table 1: The international scale of the problem of unwanted sexual behaviour on public transport**

Author/Source/Year	City/Country	Transport method	Research type	Participants	Main findings
Jafarova et al. (2014)	Baku, Azerbaijan	Metro	Survey	200 female commuters	Eight in ten women (81%) reported having experienced sexual harassment, with a quarter of these (26%) reporting it as an almost daily occurrence. Nearly six in ten victims had experienced non-physical harassment and around four in ten had experienced physical harassment.
Rahman (2010)	Dhaka, Bangladesh	Public Transport	Interviews	120 women	41% had been physically harassed or groped on public transport by male passengers, drivers, and/or conductors.
Research conducted by Secretaría de la Mujer in 2012; reported by Jaramillo (2014)	Bogotá, Columbia	Public transport	Survey	17,399 residents	64% of women had experienced unwanted sexual touching on public transport.
Shoukry, Hassan, & Komsan (2008)	Egypt	Street harassment (including public transport)	Survey	1010 women, including 109 foreign women	83% of Egyptian women and 98% of foreign women surveyed reported experiencing sexual harassment, most often on the streets and on public transport.
Osez le Feminisme (2014) and Warren (2014)	Paris, France	Metro	Survey	150 women	94% had experienced 'some sexist behaviour', from whistling to sexual assault, with almost three quarters of the women reporting adapting their behaviour or what they wore on the subway as they feared aggression.
Chockalingham & Vijaya (2008)	Chennai, India	Buses	Interviews	100 females who had experienced sexual harassment	63% reported having been subjected to several forms of sexual harassment and assault, including: 'leering looks (84%), winking (62%), gesture making (71%), unnecessary touching (73%), unnecessary leaning (79%), pressed against (65%), unexpected touching of the breast (48%), brushing of thighs and bottoms (59%), pinching of the bottoms (42%), and pinching of the hips (43%)' (p.176).
Research conducted by St Xavier's College, Mumbai, India; reported by DNA Correspondent (2013)	Mumbai, India	Public transport	Survey	4,500 female commuters	Half (48%) of respondents said that they had been verbally or physically harassed, and three quarters (75%) did not feel safe taking public transport after sundown.

Author/Source/Year	City/Country	Transport method	Research type	Participants	Main findings
Kirchhoff, Morosawa, Barkhuizen, Bussinger, Sutseyo, & Bey (2007); cited in Chockalingham & Vijaya (2008)	Jakarta, Indonesia	Trains and buses		635 students (379 female and 256 male)	Two thirds of female students and one third of male students reported having been sexually molested on public transport at least once. 39% of females and 17% of males said they had experienced this in the last year.
Horii & Burgess (2012)	Tokyo, Japan	Trains	Interviews	155 young women	48% reported having been 'groped' on a train.
Mungai & Samper (2006)	Nairobi, Kenya	'Matutu': public passenger vehicles (privately owned vans and mini-buses)	Interviews	Over 100 users of matutu	Women described being indecently assaulted, groped, rubbed against, having their tops looked down, and being ejaculated on. Rape on matutu is also a crime that 'many Kenyan women have suffered' either by hijackers or the men who work on matutu (p60).
Study conducted by INMUJERES and the National Board for the Prevention of Discrimination in 2009; cited in Dunckel-Graglia (2013b)	Mexico	Public transport			Nine in ten women had been subjected to some type of sexual violence on public transport in their lifetime. Describing their experiences in interviews, women from Mexico City told how men put their hands up their skirts, pressed their erect penises against them, masturbated in front of them, and, in one case, threatened sexual violence while holding a weapon.
Taylor (2011)	Nepal	Public Transport	Interviews with women and focus groups with men and women	Women and men	They described behaviours such as: staring, groping, touching, pinching, masturbation, whistling, singing offensive songs, intimidation, and rape. This was most often from conductors, but also passengers, drivers, traffic police, and army officers doing security checks.
Urban Resource Centre (2001)	Karachi, Pakistan	Bus, coach, and mini-bus	Interviews	108 women	The types of harassment women were subjected to included male passengers rubbing their body parts against them, drivers playing vulgar music, and conductors touching them.
Stringer (2007)	New York City, USA	Subway	Online survey	1,790 subway passengers	63% of respondents had been sexually harassed in the subway system and 10% had been sexually assaulted, most commonly during the morning and evening rush hours. 69% of respondents had felt the threat of harassment or assault.

## Appendix B: REA Search Terms

<i>Behaviour terms (OR separator)</i>	<i>Transport terms (OR separator)</i>	<i>Prevention terms (OR separator)</i>
Rape Harass* Flash* Frotteur* "Sexual violence" "Sexual assault" "Sexual activity" "Sexual harassment" "Sexual abuse" "Sexual offence" "Sexual offense" "Sexual offences" "sexual offenses" "Sex offence" "Sex offense" "Sex offences" "Sex offenses" "Sexual aggression" "Sexual Offender" "Sexual Offenders" "Sex offender" "Sex offending" "Unwanted sex" "Unwanted sexual" "Sex crime" "Indecent assault" "Indecent exposure" "Public indecency" "Unwanted exposure" "Sexual behaviour" "Sexual behavior" "Illicit sex*" "Sexual attack" "Sex attack" "Sex attacks" "Sexual Abusers" Fetish* Grop* Indecen* Masturbat* Lewd Exhibitionis*	Bus* Shuttle* Rail* Transport* Train* Tram* Autobus Underground Tube Subway Trolleybus Metro Airplane Aeroplane Plane Airport Aeroport Station Transit Coach "Public transport" "mass transit" "rapid transit" Minibus "Cruise ship" Cab* Taxi* "Cable car" Transrapid Ferr*	Prevent* Interven* Program* Campaign* Strateg* Evaluat* Review* Process* Impact* Outcome* Polic* Report* Operation* Scheme* Training Education Reduc* Lower Increase* Patrol* Monitor* Camera* Surveillance* CCTV "Closed circuit" Secur* Agen* Authorit* Federal Sherriff Enforc* Guard Staff Officer Person* Alarm Deter Watchman Safe*

## Appendix C: REA Search Strings

### Search string 1

(Rape OR Harass\* OR Flash\* OR Frotteur\* OR "Sexual violence" OR "Sexual assault" OR "Sexual activity" OR "Sexual harassment" OR "Sexual abuse" OR "Sexual offence" OR "Sexual offense" OR "Sexual offences" OR "sexual offenses" OR "Sex offence" OR "Sex offense" OR "Sex offences" OR "Sex offenses" OR "Sexual aggression" OR "Sexual Offender" OR "Sexual Offenders" OR "Sex offender" OR "Sex offending" OR "Unwanted sex" OR "Unwanted sexual" OR "Sex crime" OR "Indecent assault" OR "Indecent exposure" OR "Public indecency" OR "Unwanted exposure" "Sexual behaviour" OR "Sexual behavior" OR "Illicit sex" OR "Sexual attack" OR "Sex attack" "Sex attacks" OR "Sexual Abusers" OR Fetish\* OR Grop\* OR Indecen\* OR Masturbat\* OR Lewd OR Exhibitionis\*) AND (Bus\* OR Shuttle\* OR Rail\* OR Transport\* OR Train\* OR Tram\* OR Autobus OR Underground OR Tube OR Subway OR Trolleybus OR Metro OR Airplane OR Aeroplane OR Plane OR Airport OR Aeroport OR Station OR Transit OR Coach OR "Public transport" OR "mass transit" OR "rapid OR transit" OR Minibus OR "Cruise ship" OR Cab\* OR Taxi\* OR "Cable car" OR Transrapid OR Ferr\*)

### Search string 2

(Rape OR Harass\* OR Flash\* OR Frotteur\* OR "Sexual violence" OR "Sexual assault" OR "Sexual activity" OR "Sexual harassment" OR "Sexual abuse" OR "Sexual offence" OR "Sexual offense" OR "Sexual offences" OR "sexual offenses" OR "Sex offence" OR "Sex offense" OR "Sex offences" OR "Sex offenses" OR "Sexual aggression" OR "Sexual Offender" OR "Sexual Offenders" OR "Sex offender" OR "Sex offending" OR "Unwanted sex" OR "Unwanted sexual" OR "Sex crime" OR "Indecent assault" OR "Indecent exposure" OR "Public indecency" OR "Unwanted exposure" "Sexual behaviour" OR "Sexual behavior" OR "Illicit sex" OR "Sexual attack" OR "Sex attack" "Sex attacks" OR "Sexual Abusers" OR Fetish\* OR Grop\* OR Indecen\* OR Masturbat\* OR Lewd OR Exhibitionis\*) AND (Bus\* OR Shuttle\* OR Rail\* OR Transport\* OR Train\* OR Tram\* OR Autobus OR Underground OR Tube OR Subway OR Trolleybus OR Metro OR Airplane OR Aeroplane OR Plane OR Airport OR Aeroport OR Station OR Transit OR Coach OR "Public transport" OR "mass transit" OR "rapid OR transit" OR Minibus OR "Cruise ship" OR Cab\* OR Taxi\* OR "Cable car" OR Transrapid OR Ferr\*) AND (Prevent\* OR Interven\* OR Program\* OR Campaign\* OR Strateg\* OR Evaluat\* OR Review\* OR Process\* OR Impact\* OR Outcome\* OR Polic\* OR Report\* OR Operation\* OR Scheme\* OR Training OR Education OR Reduc\* OR Lower OR Increase\* OR Patrol\* OR Monitor\* OR Camera\* Surveillance\* OR CCTV OR "Closed circuit" OR Secur\* OR Agen\* OR Authorit\* OR Federal OR Sherriff OR Enforc\* OR Guard OR Staff OR Officer OR Person\* OR Alarm OR Deter OR Watchman OR Safe\*)

**Appendix D: Table 4: International transport staff and policing strategies on public transport**

Author/source	Country/Region/City	Strategy	Evaluation
Audit Office of New South Wales (2003)	New South Wales, Australia	Alongside other measures, in 1998 CityRail employed security guards to patrol trains from 7.00pm until 3.00am (when services stopped). 214, two-person, teams were deployed Monday to Friday, with 119 teams operating at the weekend, and an extra 35 teams operating between 2pm and 7.00 pm on weekdays for high risk services.	Over the five years that these initiatives were studied, the rate of sexual offences remained fairly steady, ranging from 122 to 139. In terms of fear of crime, after the introduction of safety guards, up to 35% of passengers on trains and 27% of passengers on stations said that they now felt safe at night, in comparison with 18% in 1995.
Jaramillo (2014); Wyss (2014)	Bogota, Columbia	Colombian National Police introduced an elite group of 11 officers, seven of whom were women, trained in self-defence and intelligence-gathering, and equipped with walkie-talkies and Tasers. They blended in with the crowds on the city's bus system, looking for offenders at rush hour. Describing their tactics, one of the officers said: 'We look for people who are staring at women — looking at their private parts, their legs, their butts...' (Wyss, 2014).	In the first 20 days that the 'Elite Group' operated, they caught 16 men, some of whom were repeat offenders (Jaramillo, 2014).
Hartvigsen (2015, personal communication)	Denmark	Danish State Railways currently work closely with Natteravnene (Night Owls), a non-profit organization made up of adult volunteers. Volunteers wear distinctive yellow jackets, and talk with passengers at night; they are given free travel on all trains and buses when they are in uniform.	Night Owls are seen to 'contribute positively to the security both at stations and in trains' (Hartvigsen, 2015, personal communication).
Uittenbogaard & Ceccato (2013)	Stockholm, Sweden	Visible guards, security officers, police, and 'safety hosts' (trygghetsvårdar) introduced at subway stations.	Analysis of crime rates at stations indicated that the measures improved safety, although they were not widely used. Short interviews with passengers found that they highly rated the presence of such staff.

Author/source	Country/Region/City	Strategy	Evaluation
Stafford & Pettersson (2004)	West Yorkshire, UK	Target Policing Initiative - For two months in 2002, uniformed police officers in high visibility jackets, and plain-clothes officers, were deployed on buses and at bus stops in West Yorkshire. Peak travel times were covered by 57 officers. Uniformed special constables wearing high visibility jackets also rode on buses in Halifax during the daytime and on Saturdays, on routes including the city centre and housing estates. Their remit was to talk to passengers and to provide a visible presence.	The Target Policing Initiative received positive feedback from passengers. One bus passenger said: 'I don't go out at night, but it certainly makes me feel safer during the day' (p81). Another stressed the importance of the officers wearing high visibility clothing: 'You need to have them in uniform, you can't miss them with those orange jackets on. With those jackets, people can even see them from the pavements and know they're here' (p82).
Southwest Trains (n.d.)	Southwest Trains, England	Rail Community Officers, employed by South West Trains in England, work alongside BTP to provide a high profile uniformed presence. They are there to: deter crime and disorder; reassure passengers and employees; help reduce crime and the fear of it; and help to deal with antisocial behaviour <sup>30</sup> .	No evaluation identified.
Stafford & Pettersson (2004)	West Midlands, England	A pilot scheme in 2002 trained unemployed people to work as 'Travel Couriers' on buses, with the aim of improving passengers' feelings of safety.	The pilot scheme was meant to run for two years, however it was discontinued after just four months. Problems included the couriers being too young (18-25) and so not confident dealing with the public; the scheme only being operational in daytime hours; and low awareness of the initiative.

<sup>30</sup> [http://www.teachingzone.org/swt/rail\\_community\\_officers.htm](http://www.teachingzone.org/swt/rail_community_officers.htm)

Author/source	Country/Region/City	Strategy	Evaluation
Gold (2006); NYPD Transit Bureau (n.d); Stringer (2007)	New York, USA	'Operation Exposure' (2006) used plain-clothes officers to conduct 'undercover stings', riding on trains in order to identify offenders. NYPD have also targeted unwanted sexual behaviour by deploying uniformed police officers, who are usually assigned elsewhere, to patrol the subway system during peak commuter times. Based on an analysis of crime data, they currently deploy uniform/plain clothes officers to target specific stations and train lines where sex offenders frequent.	Police made 245 arrests for forcible touching, lewd behaviour, or sexual abuse on the subways in 2006, an increase of 131% from the previous year. Operation Exposure was considered a success.
Schulz & Gilbert (1996).	Portland, USA	In the 1990s, Tri-Met developed a Rider Advocate group, made up of a supervisor and ten people from a non-profit organisation who were paid to ride on random buses. The programme was later expanded to college students who received tuition benefits for their participation. All participants were identified with Tri-Met jackets.	No evaluation identified.

**Appendix E: Table 5: International CCTV use**

Author/ Source	Country/Region/ City	Strategy	Evaluation
Grandmaison & Tremblay (1997) <sup>31</sup>	Montreal, Canada	Thirteen out of 65 of Montreal's underground stations were fitted with an average of 10 CCTV cameras each.	Monthly volume of reported offences in target and control stations were analysed over a three year period. The authors concluded that there was no evidence that CCTV had any overall effect on offender's behaviour.
Priks (2010)	Stockholm, Sweden	CCTV installed in 84 stations on the Stockholm subway.	Analysed data from 2006-2008. It was found that while there was no overall significant effect, crime on subways in <i>busy city stations</i> was reduced by approximately 20%. The reduction was mostly in planned crime, such as pickpocketing, robbery, and drug dealing, rather than opportunistic offences such as assault. Before CCTV was installed there were around 12 offences per station per month, while afterwards there were an average of 10. It is concluded that the benefits outweigh the costs.
Welsh & Farrington (2008)	London, England; Montreal, Canada	Meta-analysis of 44 studies of the effects of CCTV on reducing crime in public space. Included four studies considering public transport (although not specifically sexual offences). These looked at three initiatives in underground stations in London and one in Montreal, Canada. Each scheme involved active CCTV monitoring by the police and, in London but not Montreal, the evaluations included other interventions as well as CCTV, such as special police patrols, alarm buttons, and mirrors.	Follow-up periods ranged from 12-32 months, and incidents of theft, robbery, and fraud were used as outcome measures. It was found that two of the programmes had a desirable effect, one had no effect, and one had an undesirable effect on crime. However, the use of concurrent initiatives for the two effective programs in London made it hard to determine whether it was CCTV that was responsible for the reduction in crime.

<sup>31</sup> This is the only study from the meta-analysis by Welsh and Farrington (2008) which is within the timeframe for research in this REA (i.e. post-1994)



Author/ Source	Country/Region/ City	Strategy	Evaluation
British Transport Police, CCTV, (n.d <sup>32</sup> )	London, England	30,000 cameras, by way of a CCTV-hub in London, which began operating in 2012. They can track people using the transport system in real time, identify suspects, and download videos for evidence	No evaluation identified.
(Transport for London, CCTV, n.d <sup>33</sup> )	London, England	Large network of CCTV cameras across public transport in London, including: all London Underground stations and car parks; some Underground trains; in and around Victoria Coach Station; on Docklands Light railway stations, platforms, and trains; on London Overground stations, platforms and trains; on Croydon Tramlink platforms and trams; and on and around the piers used by London River and Woolwich Ferry Services, as well as on the ferries themselves	No evaluation identified.
Safer Travel Partnership (2014)	West Midlands, England	11,000 cameras on-board buses	No evaluation identified.
Loukaitou-Sideris & Fink (2009)	USA	90% of representatives from 131 transit agencies surveyed reported using CCTV at train stations/platforms, around 75% at train station entrances and exits, nearly 70% on trains, and half at station car parks. While 80% used it on buses, but only 10% at bus stops.	Transport agency representatives rated CCTV third in terms of security measures for buses, with 57% saying it was very effective, although bus stops scored lower, with only 25% considering it very effective. CCTV was also rated third for effectiveness on trains, with 52% of respondents rating it as very effective. Overall, when it came to wanting to use CCTV in the future, 88% wanted to see it used on buses and 73% on trains.

<sup>32</sup> [http://www.btp.police.uk/advice\\_and\\_info/how\\_we\\_tackle\\_crime/cctv.aspx](http://www.btp.police.uk/advice_and_info/how_we_tackle_crime/cctv.aspx)

<sup>33</sup> <https://www.tfl.gov.uk/corporate/privacy-and-cookies/cctv>

Author/ Source	Country/Region/ City	Strategy	Evaluation
Schulz & Gilbert (2011)	USA	All of the 43 passenger rail agencies who completed the survey used video surveillance in some form. This was mostly at stations, on platforms, and in shelters, although more than half (28) of the agencies used CCTV on-board vehicles. Light rail systems were more likely to do so, with many agencies saying that they had cameras on at least three quarters of their trains. Almost half of the agencies had staff monitoring the cameras 24/7 and most agencies archived images (although the amount of time they kept them for varied from days to over a year).	No evaluation identified.

**Appendix F: Table 6: Key evidence for and against the use of CCTV**

Evidence in support of CCTV	Evidence against CCTV
US study of transit operators and their perceptions of the best safety measures. Technological strategies, chiefly CCTV, were rated as the most effective (Needle & Cobb, 1997)	A YouGov survey commissioned by the End Violence Against Women Coalition (EVAW, 2012) found that, in contrast to more visible staff/police presence and better lighting, only a minority of women mentioned wanting more (working) CCTV to help make them feel safer from harassment in public spaces and transport.
A study in Wales asked 47 rail passengers (26 females and 21 males) about their perceptions of safety after viewing a virtual reality walk-through of six railway stations (Cozens, Neale, Whitaker & Hillier, 2003). They also conducted six unstructured focus groups. Passengers rated CCTV as the second most effective measure that would make them feel safer at train stations, after improved lighting.	Literature review of women's safety in transit environments alongside interviews with representatives of national women's groups in the USA (Loukaitou-Sideris, 2014). The author concluded that the retrofitting of train station platforms and bus stops with CCTV provides small comfort to women, who 'emphasised that the presence of staff provides a level of security unattainable through technological substitutes' (p251).
Stafford and Pettersson (2004) found that CCTV was rated as one of the top three most effective security measures while waiting for trains, on trains, and on-board buses, but there was a caveat to this. Although participants were positive about having CCTV in principle, they were unconvinced about its efficacy in practice. These doubts related particularly to whether the cameras worked, produced good enough images, and were being monitored at a central control centre rather than locally.	In New Zealand, participants from focus groups exploring concerns about general personal security on public transport rated CCTV as 'a less favoured secondary measure to the presence of security guards' (Kennedy, 2008, p51). Although, positively, people felt that the cameras would deter some offenders and were a good backup in case an incident did occur, as the recordings could provide images of those involved and help to remind the victim of the details of what had happened.
	Data from the Chicago Transit Authority Customer Satisfaction Survey, 2003, found gender differences between how satisfied men and women were with CCTV as a safety measure on public transport (Yavuz & Welsh, 2010). The authors conclude that: 'Women are less supportive of technological solutions than the presence of staff or security personnel to improve safety, because they feel more vulnerable to victimisation when nobody is around and because they tend to be more sceptical that somebody is watching the video camera surveillance' (p2506).

**Appendix G: Table 7: Crime Prevention through Environmental Design: Natural Surveillance**

Author/ Source	Country/ Region/City	Strategy/problem and evaluation
Loukaitou-Sideris, Liggett & Iseki (2002)	Los Angeles Green Line, USA (light rail)	Stations should be designed so as to eliminate 'entrapment spots and hiding places' and aim to increase 'visibility through design and adequate lighting', thus creating defensible space (p149).  It was found that crimes against people happened most frequently on the station platforms, lifts, and stairs, and were related to particular design features of the station. These included underpass platforms which lacked visibility from the surrounding areas.
Kennedy (2008)	New Zealand	Clear or 'see-through' bus shelters, made of safety glass.  Lighting was rated as the top measure to address personal security concerns while waiting for a bus.
Uittenbogaard & Ceccato (2013)	Sweden	In underground stations, giving passengers' unrestricted views by removing objects that block their sightlines may increase visibility. For example, making lounges and exits open space, with glass windows, or having waiting areas at stations that are transparent. It was recommended that good lighting should be concentrated on areas which are relatively more deserted and, thus, where passengers are often the most fearful  Found dark corners at platforms, general poor illumination/lighting, hiding spots in transition areas, poor platform sightlines, and a lack of mirrors (all related to visibility) were significant, and all impact negatively on crime levels.
End Violence Against Women Coalition (2012)	London, UK	The YouGov survey commissioned for this study found that, after more visible staff and police presence, women wanted better lighting on buses and trains, at stops and stations, and beyond, to help make them feel safer.

Author/ Source	Country/ Region/City	Strategy/problem and evaluation
Stafford & Pettersson (2004)	Britain	<p>Bus stops should be located by busy places such as shops, or where they can be overseen by houses and people.</p> <p>Quantitative surveys and qualitative discussion groups, commissioned by the Department for Transport, also found that visibility was very important to passengers' perceptions of security. Participants felt safer when bus shelters and stops were made out of glass, not surrounded by dense vegetation, and situated in busy locations where they could be seen. As one said: 'There needs to be more thought put in to where bus stops are put. Take some thought about personal safety. Not put them where you can't be seen or see the road and passing traffic' (p60). When it came to light rail and tram stations, participants also preferred those on street level in busy locations, rather than those at deep level, that could only be accessed via pathways, and were bordered by dense vegetation. Also, while travelling on light rail and trams, participants liked bright, open, designs, where they could see the length of the tram and who was getting on. When it came to train stations, participants talked about design which eliminated dark corners where people could hide themselves.</p> <p>Good lighting was very important to passengers at bus stops and shelters. As one participant said: 'There are still not enough lights at some bus stops. They need to be well lit,' (p60). When it came to train and tube stations, good lighting was ranked as one of the top three measures to enhance personal safety. Participants felt that well lit stations were 'essential for people to feel safe' and that good lighting should be standard throughout, including on stairs and passageways.</p>
Cozens et al. (2003)	Wales, Britain	<p>Cut back heavy vegetation, including dense shrubs and bushes, on station platforms to increase visibility. Have transparent shelters, rather than brick-built ones, to improve visibility. Locate shelters near local houses to maintain visibility.</p> <p>Respondents reported feeling safer at stations when measures were taken to maintain visibility. 'People feel safer on a station that other people can see' (p129). 'If you take away those bushes and trees, you could be seen by motorists' (p129).</p> <p>Participants were asked to rank five modifications that they thought would best improve personal safety at railway stations. The highest rated improvement was more, and better, lighting, which was mentioned by 68% of all respondents (81% female and 62% male).</p>
Reed, Wallace & Rodriguez (2007)	Michigan, USA	<p>Bus stops should be located away from isolated areas, or with abandoned buildings or dark alleys nearby.</p> <p>Passengers rated seven crime reduction measures at bus stops, involving various aspects of design, patrol, and technology. Better lighting was rated second.</p>

Author/ Source	Country/ Region/City	Strategy/problem and evaluation
Stringer (2007)	New York, USA	Concluded that better lighting both in subway cars and at subway stations is a key security measure, and should be particularly targeted in areas which have 'low foot traffic' or are hidden from platforms, such as corridors connecting platforms, and entrances and exits. This should be 'bright recessed lighting' as it 'allows subway riders to have a clear view of the people in the station without creating unnecessary shadows' (p19). He also recommended that older style subway cars should be refitted with better lighting.
Loukaitou-Sideris, (2005)		<p>Increase visibility by pedestrian tunnels being replaced with ground-level crossings, and getting rid of empty alleys and fences, which can block sightlines.</p> <p>Good lighting is consistently perceived by passengers – particularly females – as being one of the best methods of reducing assaults and fear of crime in public spaces generally, and public transport specifically.</p>
Lawlink (1999)		Underground station lifts with glass doors. Also, replacing low-growth shrubs 'with single stem trees with high foliage to improve sight lines' (p14). Lighting needs to be appropriate, 'some sensor lighting and spotlights which are not positioned properly, create a glare and temporary 'light blindness' (p22)
Loukaitou-Sideris (2014)		<p>Bus shelters that allow for good visibility, without (e.g.) adverts blocking the view to the street, and locating bus stops where there is activity and people.</p> <p>Women interviewed identified visibility in bus shelters as important. Situating bus stops nearby places where there was activity and people was also thought to be 'essential in creating 'safety in numbers'' (p250-1).</p> <p>All participants said that good lighting on all parts of the transport network was 'extremely important', with one woman describing its importance as 'huge' and another saying that it was 'an easy fix' and that there was 'no excuse for not having good lighting' (p251).</p>
Volinski & Tucker (2003)		In the context of bus stops, 'too much or too bright lighting' may create the 'fish bowl effect', where passengers cannot see out of the shelter but others can see in (p38). Fixed duration solar-powered lighting, which comes on when a passenger pushes a button has been proposed for more remote, and less frequently used locations. However, if a passenger is attacked at such a location there is the danger that they will be unable to reactivate the light, making the crime less likely to be noticed by others.

**Appendix H: Table 8: International grassroots/community action campaigns and their evaluations**

Author/ source	Country/Region/City	Strategy	Evaluation
Kearl (2012a); Thein (2012); Verbruggen (2014)	Myanmar, Burma	February 2012, an anti-harassment campaign called 'whistle for help' was launched. Every Tuesday morning of that month, 150 volunteers – wearing distinctive purple t-shirts with a big picture of a whistle and the slogan ' <i>whistle for help</i> ' – distributed leaflets and whistles at eight busy bus stops in Yangon. The leaflet advised women to literally blow the whistle on sexual harassment when they experienced it on buses and encouraged others to help them: 'Please go and help the women who blow whistle and let's stop this unacceptable behaviour'.	The 'whistle for help campaign' was praised for giving women a chance to speak about the issue, and increase public awareness of sexual harassment: 'The people knew about the campaign, and even if they were joking about it or ridiculing it, they talked about it,' said Htar Htar, a women's rights activist involved in the campaign. The initiative was extended for nine months, and also led to the implementation of women-only buses.
Lambrick & Rainero (2010)	Bogota, Columbia	In 2008, leading up to the International Day for the Elimination of Violence against Women, various events were held to raise awareness about the safety of women on public transport. In one initiative, women moved through the transport system holding signs with messages about respecting women and violence against them being socially unacceptable. One sign showed a man leaning against a woman on a subway train with the slogan: ' <i>We do not want this support</i> '.	No evaluation identified.
Gad & Hassan (2012)	Egypt	HarassMap has 1,500 volunteers who talk to people on the streets, imploring them to stand up to sexual harassment when they witness it and bring back old Egyptian values where such behaviour would not have been tolerated <sup>34</sup> . Volunteers may share their own stories of harassment with members of the community, encourage others to remember their experiences, show people where most incidents are occurring in their area, and give accurate information in order to dispel myths and stereotypes. In the future, the project plans to expand its community outreach to restaurants, malls, and public transportation.	No evaluation identified.

<sup>34</sup> <https://tavaana.org/en/content/taking-back-egypts-streets-harassmap-campaign-end-sexual-harassment>

Author/ source	Country/Region/City	Strategy	Evaluation
Osez le Feminisme (2014) and Warren (2014)	Paris, France	<p>A campaign '<i>Take back the Metro</i>' was launched in November 2014 by feminist group Osez le Feminisme (Dare Feminism). The group handed out leaflets and put up posters on trains with anti-harassment pictures and messages, one of which read:</p> <p>'Spreading your legs is not necessary. It is preferable to keep your legs together. Testicles are not made of crystal and will not explode:</p> <p>-You can thus leave more space for your neighbours.</p> <p>-You will no longer inflict this visual pollution on them.'</p> <p>Another said: '<i>Warning! Do not put your hand on my ass, or you could get slapped very hard!</i>' While another told men: '<i>When the train is crowded, do not take advantage of it to rub against your neighbour.</i>' The campaign was launched after the group conducted a survey in July 2014 which found that 94% of 150 women had experienced sexist behaviour and assault on the Metro. The group hoped that the campaign would raise awareness about sexual harassment on public transport and reclaim the space.</p>	No evaluation identified.
Kearl (2012a)	South Africa	<p>After two teenage girls (wearing mini-skirts) were groped and sexually harassed by a group of 50-60 men at a taxi rank, around 3,000 people marched through Johannesburg in protest against sexual harassment. The march was organised by the African National Congress Women's League, in order to get the message across 'that women had the right wear whatever they wanted without fear of victimization' (p4).</p>	No evaluation identified.



Author/ source	Country/Region/City	Strategy	Evaluation
Kearl (2012b) and Regina (2012)	Sri Lanka	In 2012, hundreds of young men in Sri Lanka – who had received special training – boarded buses to talk to people about the issue. The ‘S.H.O.W You Care’ (SHOW = Stop Harassment Of Women) project involved the men apologising to women for any harassment they had experienced, telling them about the legal options available to them, and challenging male passengers to take responsibility for the issue. Over the space of one week, over 1,000 buses were boarded, reaching over 30,000 commuters in Colombo	The project was received very positively, according to the campaign organisers, who said: ‘The response from the commuters on buses was astounding. Passengers on the buses, both male and female, were very responsive to the campaign. Many encouraged the efforts of the young men, asked for more information about the campaign ... The passengers were eager to engage in conversations regarding the issue of harassment on public transportation and were heartened by the efforts of the young men to attempt to resolve this problem in the city of Colombo’ (Kearl, 2012b, p4).

**Appendix I: Table 9: Online platforms and projects for sharing experiences of sexual harassment and assault on public transport and their effectiveness**

Author/source	Country/Region/City	Strategy	Evaluation
Patheja (2014)	India	<i>The Blank Noise Project</i> – a volunteer led collective which was set up in 2003 to address street harassment, also known as ‘eve-teasing’ – conducted an online ‘blogathan’ in 2006 which asked people to share their experiences of street sexual harassment, including on public transport. Hundreds of bloggers took part, ‘leading to a mass online catharsis. The viral transfer of testimonials went from one blog to another and the anonymity of the medium created a space for people to speak fearlessly’. The blogathan conveyed the message that harassment of women in public spaces, which is often seen as normal, actually ‘alters one’s relationship with the body and the city’ and established ‘eve teasing’ as an important issue to be addressed.	Blank Noise Project in India observes that figures about website views may underestimate how many people are being influenced by such projects:  ‘It is challenging to measure the impact of Blank Noise and we are still grappling with methods that would help us understand it. If impact is measured solely by the number of people in the Blank Noise community orkut (2000+) facebook (3063+) googlegroups (3000), twitter (600+) and the statcount blog hits per day, it excludes information such as how many individuals started thinking about street sexual harassment as an issue that concerns them? How many men and women took the conversations from the internet to their personal lives, to their home and friends’ (India Social). <sup>35</sup>

<sup>35</sup> <http://www.indiasocial.in/case-study-blank-noise/>

Author/source	Country/Region/City	Strategy	Evaluation
Bates (2015), Everyday Sexism (2013) and Lo (2013)	England	<p><i>The Everyday Sexism Project</i> set up by Laura Bates in England in 2012, 'to catalogue instances of sexism experienced by women on a day to day basis. They might be serious or minor, outrageously offensive or so niggling and normalised that you don't even feel able to protest'<sup>36</sup>. Women and girls can share their experiences online (via the website, Twitter, or email) under their real name or a pseudonym. The project is now spreading from England to countries all over the world, recording sexist incidents of all types and in all areas. Regarding public transport, Bates notes:</p> <p>'We have had around 5,000 stories from women of all ages describing sexism, harassment and assault on the transport network, from unwanted sexual comments and demands to groping and public masturbation, from being followed and harassed to being photographed against their will,' (Bates, quoted in Lo, 2013, p2).</p>	Since the launch of The Everyday Sexism Project, over 25,000 stories have been submitted
Hollaback! Website and Gold (2006)	Initially US, now worldwide	Hollaback! is now a worldwide movement to end street harassment (including that occurring on public transport), which encourages those who have experienced or witnessed harassment to share their story online or via a smartphone app. Users can describe what they experienced or saw; the type of harassment encountered (e.g. stalking, groping, public masturbation, assault); and where the incident occurred <sup>37</sup> . They may also upload photos which might be, for example, of the harasser themselves or of the scene. These stories are then available for people to read online. Fundamentally, the 'goal is to offer a virtual public space for women to reclaim power from perpetrators by providing a collective location for the victims' stories to be told and their assaulters to be recorded' (Loukaitou-Sideris et al., 2009).	Users of the Hollaback! website and app often post pictures of their harassers, which may both empower them and lead to arrests. However, this may put them in more physical danger than they might otherwise have been in. Hollaback! therefore advises against confronting perpetrators in deserted areas and suggest that photos be taken discretely, from a distance. Police also urge exercising caution when taking photos in case they provoke a violent response (Gold, 2006).

<sup>36</sup> <http://www.everydaysexism.com/>

<sup>37</sup> <http://www.ihollaback.org/blog/2013/08/22/questions-about-our-nyc-app-the-faq-is-here/>

Author/source	Country/Region/City	Strategy	Evaluation
Fahmy et al., (2014)	International but example for Egypt	Crowdsourcing (aka collective intelligence, open innovation, citizen science, and volunteered geographic information) is used to collect and analyse data on sexual harassment and offences in public spaces, including on transport. For example, using HarassMap, in Egypt, victims of/witnesses to sexual harassment can anonymously document incidents online, by text, or through social media. These data are then detailed on an online map which allows anyone to see where such crime is occurring. People's stories are also published so that others can see the types of incidents that are happening, and victims receive information on legal, medical, and psychological services.	In its first year, the HarassMap website had 88,851 visits, 76,211 visitors, and 239,821 page views (HarassMap, 2012a).

Appendix J: Table 10: Smartphone apps and text numbers for reporting sexual offences on public transport and their

Author/ source	Country/Region/City	Strategy	Evaluation
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effectiveness

TransLink (2015); Talbott (2014; 2015)	Vancouver, Canada	In 2014 Metro Vancouver Transit Police launched their 'See Something, Say Something' campaign, which introduced two new tools to make it easier to report (non-emergency) crime on public transport: either through a phone app or SMS (text) reporting. Passengers can send text messages to 87-77-77 in real-time, which are received 24/7 by dispatchers, who can respond appropriately (TransLink, 2015). The text number, which was introduced in early 2014, is prominently advertised throughout the transport system on posters and also via electronic advertising (Metro Vancouver Transit Police, 2015). While, the mobile app connects all Transit Police channels into one single app, called OnDuty. It enables passengers to (discreetly) report a non-emergency incident taking place on public transport, as well as staying connected to social media and planning their trip (Translink, 2015).	The smartphone app has been downloaded by over 7,000 people and, from February to November 2014, there were 1,504 police files created as a result of text reports (Metro Vancouver Transit Police, 2015). Before and after figures of crime show an increase in reporting since the launch of the initiative, which was its aim (Talbott, 2014, personal communication). Figures provided by Metro Vancouver Transit Police show that, as of October 2014, reported sex crimes were 28% higher than the six year average (the average being 95 offences per year). As noted by Lance Talbott, Manager, Strategic Services for Transit Police in Metro Vancouver: 'While we cannot demonstrably associate the increase with a specific initiative like our SMS Texting, I believe we can associate it to our general campaign of awareness and encouraging of reporting on the issue' (Talbott, 2015a, personal communication).
Author/ source	Country/Region/City	Strategy	Evaluation
Kumar-	India	Several smartphone safety apps are available, or in the development stage.	No evaluation identified.

Dash (2013); Cave (2014)		<p>1) The government is reportedly in the process of launching a pilot project in Jaipur to test out a 'panic button' app – to be pre-installed on all basic models of phones – which will allow women to raise the alarm and get help in an emergency situation. While an app tentatively called 'Tell Tale' is also being developed to track vehicles, which can be used without turning on the phone's GPS but by connecting to the vehicle's GPS.</p> <p>2) MapmyIndia's Locate app (available as a free download), allows users to track three other users who have approved their tracking request (NDTV, 2013). The user can manually check the location or the app automatically picks it up every 500 meters.</p> <p>3) SafetiPin<sup>38</sup> has a safety tracker which acts as a 'personal guardian', using GPS navigation to allow the tracking of a person who has turned their 'Track Me' button on. Their precise GPS location can be tracked by a friend/family/colleague on a map and this information used to provide them with quick help in a crisis.</p>	
Project Guardian (2013)	London, England	Project Guardian also has a number (61016) that passengers can text to report unwanted sexual behaviour and assault on the railway network.	No evaluation identified.
<b>Author/ source</b>	<b>Country/Region/City</b>	<b>Strategy</b>	<b>Evaluation</b>
Witness Confident	UK	The UK crime prevention charity Witness Confident has also developed an app called Self Evident, which lets users report (non-emergency) crimes to the police. The app	In a survey of the experiences of the first 100 users of the UK Self Evident app who made crime reports: 92%

<sup>38</sup> <http://safetipin.com/>

(2014)		aims to: deter crime; give the public a safe and easy way to contact and help the police; save time and money; and give victims and witnesses more confidence to participate in the criminal justice process. Specifically, the app allows victims and witnesses to report a crime, giving an account of what happened, and attach photos and/or video footage. An added advantage is that they can keep a record of the report themselves, making the police more accountable. It is aimed at all non-emergency crimes (e.g. burglary, anti-social behaviour, fraud) as well as crimes such as harassment, stalking, and assault, which may occur in public places such as on transport.	recommended using Self Evident; 95% valued that they could track when the police access their report; 97% thought the police should actively encourage people to use apps to report crime; and 100% valued being able to have a copy of their report (Witness Confident, 2014). Although slightly lower figures were found for satisfaction with police response (67%), as 'teething problems' are resolved it is hoped that this will rise. Self Evident has now been downloaded over 11,000 times since 2013.
Massachusetts Bay Transportation Authority (2012)	Boston, USA	MBTA's 'See Say' smartphone app enables passengers to easily report details of any suspicious activity (using both written text and pictures) to the Transit Police <sup>39</sup> . The app is discrete, in that passengers may choose to send reports anonymously and their smartphone flash is automatically disabled when they take a photo. The app is specifically designed for environments (such as subways) with limited mobile phone service, sending reports immediately after the signal returns. See Say also allow passengers to receive alerts from the transport police in emergency situations and allows for two-way communication, so that passengers can comment back on alerts from the police and the Transit Dispatcher can ask for more information.	No evaluation identified.

<sup>39</sup> [http://www.mbta.com/about the mbta/news\\_events/?id=24872&month=&year=](http://www.mbta.com/about_the_mbta/news_events/?id=24872&month=&year=)



**Appendix K: Table 11: Key evidence in support of, and against, women-only transportation**

Evidence in support of women-only transportation	Evidence against women-only transportation
<p>Three years after the introduction of the Viajemos Seguras ('Women Traveling Safely') programme in 2008 in Mexico City, the sex-segregation initiative had succeeded in reducing the number of sexual harassment cases from five to one per day (Forde, 2013).</p>	<p>In the US, train operators have also reported fear of being accused of 'reverse discrimination' if they adopt women only carriages (Loukaitou-Sideris &amp; Fink, 2009).</p>
<p>A poll in October 2014, by the Thompson Reuters Foundation and YouGov, found that, of the 6,300 women surveyed worldwide, seven in ten would feel safer in single-sex areas on buses and trains. In London, 45% of women said they would feel safer in women-only train carriages (Chao-Fong, 2014).</p>	<p>In Sao Paulo, Brazil, for instance, women have voiced concerns about 'the pink train' – which has women-only underground carriages – arguing that they should be free to feel safe in public (Grant, 2014).</p>
<p>An online survey of 2,288 readers of the newspaper O'Globo found that 63.85% of readers approved women-only carriages and thought they would help put a stop to sexual assault and disrespect towards women (de Oliveira, 2006).</p>	<p>In Bogota, Columbia, women-only transport was 'condemned as a superficial fix that aimed to protect women by segregating them, because prosecuting men or expecting them to behave like decent human adults would be too much work' (Jaramillo, 2014).</p>
<p>In Mexico City, 66% of 116 women surveyed thought that women-only transport was safer. Of the 44% who did not completely agree with this statement, almost half only disagreed because they thought women-only transport was not well guarded, with men not respecting it (Dunckel-Graglia, 2013a). More than half of the women surveyed said that they always took women-only transport. Of the quarter who said they never/almost never, used it, half said that this was due to lack of access.</p>	<p>Men's opinions of women-only carriages in Mexico City were very negative, arguing along the lines that 'if women don't want to get hurt, they should not play the game', seeing the idea as 'a bit of a joke' or even as 'disgusting' (p.95) (Dunckel-Graglia, 2013a).</p>
<p>Research with women in Pune, India, and Dhaka, Bangladesh (Atrop, 1996, cited in Peters, 2001) found that women-only carriages on commuter trains were very popular. Around half the women in Dhaka, who wanted women-only bus services</p>	<p>In Pune, only 2% of women sampled thought that single-sex buses were a good idea, preferring the option of extra buses for everyone to reduce overcrowding (Atrop, 1996, cited in Peters, 2001).</p>

Evidence in support of women-only transportation	Evidence against women-only transportation
<p>In Japan some women have reported feeling safer and men have welcomed not having to worry about false allegations of assault (Joyce, 2005). Horii and Burgess (2012) found that over half (54%) of the 155 Japanese women interviewed would like to see more women-only carriages.</p>	<p>Some women in Japan worry that if they use a mixed carriage they will be viewed as a 'willing' victim and men complain that, on already busy public transport, this makes the remaining carriages excessively overcrowded (McGirk, 2000). Transport officials say that women-only cars not only make it hard to evenly distribute passengers in other cars but also that women-only carriages might not stop at the same places on platforms, dependant on the shape and lengths of trains (Shimbun, 2005). Horii and Burgess (2012) found only a minority (7%) actually used women-only carriages 'very often', this was often due to limitations in, and unavailability of, services, and long walks to women-only carriages (which are situated at the end of trains). However, other Japanese women cited reasons based on gender equality, expressing concerns over inconvenience for, and 'reverse discrimination' against, men, and saying that both sexes should be treated equally.</p>
	<p>In Rio de Janeiro, some women were reported as saying that such measures were palliative and that education is the key (de Oliveira, 2006).</p>

## Appendix L: Papers included and their Weight of Evidence Scores

Source <sup>40</sup>	Reference	Confidence Score	Relevance Score
G	ABC News (2005)	Low	Medium
G	AFP. (2011)	Low	Medium
G	Annear, S. (2013a)	Low	High
C	Annear, S. (2013b)	Low	Low
G	Audit Office of New South Wales. (2003)	Low	High
G	Babinard, J. (2012)	Low	Medium
G	Banerji, A. (2012)	Low	Low
G	Bates, L. (2013)	Low	Medium
G	Bates, L. (2015)	Low	Medium
G	Batley, R., Rogerson, M., Nellthorp, J., Wardman, M., Hirschfield, A., Newton, A. D., . . . Chintakayala, P. K. (2012)	High	High
G	How can we improve public transit safety for women? ( 2014)	Low	Medium
G	BBC News. (2000)	Low	Medium
G	BBC News. (2013)	Low	Low
G	BBC News. (2014)	Low	Medium
G	Beller, A., Garelik, S., & Cooper, S. (1980)	Low	High
R	Best, A. (2013)	Low	Medium
G	Birdsall, N., Ibrahim, A., & Gupta, G. R. (2004)	Low	Medium
G	Bishop, R. (2014)	Low	Medium
G	Booth, K. & Husseiny, S. E. (2014)	Low	Medium
R	Boyd, A. & Boyd, P. (1998)	Low	High
G	British Transport Police (2004)	Low	Medium
G	British Transport Police. (2015)	Low	Low
G	Bull, G. (2008)	Low	Medium
G	Burrell, A. (2007)	Medium	High
G	Cartledge, J. (2014)	Low	Medium
G	Cave, K. (2014)	Low	Medium
C	Ceccato, V. (2014a)	Medium	High
C	Ceccato, V. (2014b)	Medium	Low
C	Ceccato, V., Beshagi, B. & Wiebe, D. (in progress)	Low	Medium
G	Chao-Fong, L. (2014)	Low	Medium
G	Chatterjee, R. (2013)	Low	Medium
G	Chockalingam, K., & Vijaya, A. (2008)	Medium	High
R	Cozens, P., Neale, R., Whitaker, J. & Hillier, D. (2003)	Medium	Medium

<sup>40</sup> A=Academic; G=Google; R=Reference lists; C=Call for papers

Source <sup>41</sup>	Reference	Confidence Score	Relevance Score
G	Crouch, M. (2009)	Low	Low
G	Daily News Analysis Correspondent. (2013)	Low	Medium
G	Dalton, A. (2014)	Low	Medium
G	Darido, G. (2010)	Low	Medium
G	de Oliveira, M. B. (2006)	Low	Medium
G	Delgado (2014)	Low	Low
G	Department for Transport (2000)	Low	Medium
G	Department for Transport. (2012)	Low	Low
G	Dhillon, M., & Bakaya, S. (2014)	Medium	High
G	Duchène, C. (2011)	Low	Medium
G	Dunckel-Graglia, A. (2013a)	Low	High
R	Dunckel-Graglia, A. (2013b)	Medium	High
G	Easton, H., & Smith, F. (2003)	Medium	Medium
G	El Deeb, B. (2013)	Low	Medium
G	Elinson, Z. (2012)	Low	Low
C	End Violence Against Women (2012a)	Low	Medium
C	End Violence Against Women (2012b)	Low	Low
G	Everyday Sexism. (2013)	Low	Low
G	Fahmy, A., Abdekmonem, A., Hamdy, E., Badr, A., Hassan, R., Rizzo, H., . . . Mansour, S. (2014)	Medium	High
C	Farrington, D. P., Gill, M., Waples, S. J. & Argomaniz, J. (2007)	Low	Medium
G	Forde, J. (2013)	Low	Medium
G	France-Presse, A. (2015)	Low	High
G	Gad, S., & Hassan, R. (2012)	Low	Low
G	Gallison, J. K. (2012)	Medium	Medium
G	Gayathri, A. (2013)	Low	Low
G	Gender and Transport Resource Guide (2007)	Low	Low
G	Glanvill, N. (2014)	Low	Medium
R	Gold, M. (2006)	Low	High
R	Grandmaison, R. & Tremblay, P. (1997)	Low	Medium
G	Grant, K. (2014)	Low	Medium
C	Gray, R. (2014)	Low	Low
G	Greater London Authority. (2007)	Low	Medium
G	Greater London Authority. (2010)	Low	Medium

<sup>41</sup> A=Academic; G=Google; R=Reference lists; C=Call for papers

Source <sup>42</sup>	Reference	Confidence Score	Relevance Score
A	Grossin, C., Sibille, I., de la Grandmaison, G L, Banasr, A., Brion, F., & Durigon, M. (2003)	Low	Low
G	IANS (2014)	Low	Low
G	HarrassMap!. (n.d.)	Low	High
G	Harrison, L. (2012)	Low	Medium
G	Hartocollis, A. (2006)	Low	Medium
G	Hayat Mahmud. (2014)	Low	High
C	Hiebert, P. (2014)	Low	Low
G	Hollaback!. (2013)	Low	High
G	Horii, M. & Burgess, A. (2012)	Medium	High
G	Huffington, C. (2013)	Low	High
G	Jafarova, T., Campbell, S., & Rojas, W. S. (2014)	Low	Medium
G	Jakarta Globe (2010)	Low	Low
G	Jaramillo, J.J. (2014)	Low	High
G	Jarvis, H., Westendorf, C. & Bhuiyan, R. (2015)	Low	Low
G	Joyce, C. (2005)	Low	High
G	Kabak, B. (2008)	Low	Low
G	Kearl, H. (2012a)	Low	Medium
G	Kearl, H. (2012b)	Low	High
G	Kennedy, D. M. (2008a)	Low	Medium
G	Kennedy, D. M. (2008b)	Medium	High
A	Khalilieh, H. S. (2006)	Low	Low
G	Kumar-Dash, D. (2013)	Low	High
C	Lambillion, A. (2012)	Low	Medium
G	Lambrick, M. & Rainero, L. (2010)	Low	Medium
G	Lawlink (1999)	Low	High
C	Lemieux, A. M. & Felson, M. (2012)	Medium	Low
G	Lenton, R., Smith, M. D., Fox, J. & Morra, N. (1999)	Medium	Medium
G	Lewis, L. (2004)	Low	High
C	Lincoln, R. & Gregory, A. (2014)	Low	Low
G	Lo, C. (2013)	Low	High
R	Loukaitou-Sideris (2005)	Low	Medium
C	Loukaitou-Sideris, A. & Fink, C. (2009)	Low	Medium
C	Loukaitou-Sideris, A. (2009)	Low	Medium
C	Loukaitou-Sideris, A. (2014)	Low	High

<sup>42</sup> A=Academic; G=Google; R=Reference lists; C=Call for papers

Source <sup>43</sup>	Reference	Confidence Score	Relevance Score
R	Loukaitou-Sideris, A. Bornstein, A., Fink, C., Samuels, L., & Gerami, S. (2009)	Low	High
G	Majumder, S. (2012)	Low	Low
R	Massachusetts Bay Transportation Authority (2012a)	Low	Medium
C	Massachusetts Bay Transportation Authority (2012b)	Low	Medium
G	McGirk, J. (2014)	Low	Medium
G	McKenney, C. (2014)	Low	Medium
G	Meggison, T. (2013)	Low	Low
G	METRAC. (2014)	Low	Low
C	Metro Vancouver Transit Police. (2015)	Low	High
G	Moore, S. (2011)	Low	Medium
G	Morgan, R., & Smith, M. J. (2006)	Low	High
A	Mungai, M., & Samper, D. A. (2006)	Low	Medium
C	Natarajan, M. (2013)	Low	Low
G	NDTV. (2013)	Low	Low
R	Needle, J.R. & Cobb, M. (1997)	Low	High
G	Nelson, K. (2013)	Low	Medium
R	Neuman, W. (2007)	Low	Low
G	Neupane, G., & Chesney-Lind, M. (2013)	High	High
G	New Straits Times. (2010)	Low	Medium
C	NYPD Transit Bureau (n.d)	Low	High
G	Ong, R. Y. C., & Chui, W. H. (2008)	Low	Medium
G	Oropeza, J., Perron, M. & Toledo, C. (2014)	Low	Medium
G	Osez le Feminisme (2014)	Low	Medium
G	Pandit, A. (2014)	Low	High
C	PassengerFocus. (2012)	Low	Low
G	Paudel, R. (2011)	Low	High
G	Peters, D. (2001)	Low	Medium
G	Pilkington. (2011)	Low	Low
R	Priks, M. (2010)	Medium	Medium
G	Project Guardian (2013a)	Low	High
G	Rahman, M. S. (2010)	Low	Medium
G	Reclaim the Night. (2013)	Low	Low
G	Reed, Wallace, & Rodriguez. (2007)	Low	Medium
G	Regina (2012)	Low	Low

<sup>43</sup> A=Academic; G=Google; R=Reference lists; C=Call for papers

Source <sup>44</sup>	Reference	Confidence Score	Relevance Score
G	Rivera, R. L. K. (2007)	Low	Low
C	Rossi, M. (2014)	Low	High
G	Rousseau, M. (2013)	Low	Medium
C	Rustin, S. (2014)	Low	Low
G	Safer Lambeth (2014)	Low	Medium
G	Safer Lambeth & Metropolitan Police. [n.d]	Low	Medium
G	Safer Travel Partnership (2014)	Low	Medium
A	Saguy, A. C. (2002)	Medium	Low
R	Schulz, D. & Gilbert, S. (1996)	Low	Medium
G	Schulz, D. M. & Gilbert, S. (2011)	Low	Medium
A	Seedat, M., MacKenzie, S. Mohan, D. (2006)	Medium	Low
G	Shimbun, A. (2005)	Low	Medium
G	Shoukry, A., Hassan, M. & Komsan, N. A. (2008)	Low	Medium
G	Smith, M. J. (2008)	Medium	High
G	Smith, M. J., & Clarke, R. V. (2000)	Low	Medium
G	Smith, E. (2014)	Low	Medium
G	South West Trains (2011)	Low	Medium
G	Stafford, J., & Pettersson, G. (2004)	Medium	Medium
C	Stringer, S. M. (2007)	Low	High
G	Taylor, A. (2011)	Medium	Medium
G	Tempelsman, A. (2007)	Low	High
G	Thapa, C., & Rana, A. (1994)	Low	Medium
G	Thein, C. (2012)	Low	High
A	Thomas, M. A. (2006)	Low	Low
G	TransLink. (2015)	Low	High
G	Transport for London (2010)	Low	Medium
G	Transport for London (2013a)	Medium	Medium
G	Transport for London (2013b)	Low	Medium
G	Transport for London (2013c)	Low	Medium
G	Transport for London (2014a)	Low	Medium
G	Transport for London (2014b)	Low	Medium
G	Transport for London (n.d.a)	Low	Medium
G	Transport for London. (2015)	Low	Medium
G	Tulloch, M. (2000)	Medium	Low
C	Twyford, R. (2013).	Low	High
R	Uittenbogaard, A.C. & Ceccato, V. (2013)	Medium	Medium

<sup>44</sup> A=Academic; G=Google; R=Reference lists; C=Call for papers

Source <sup>45</sup>	Reference	Confidence Score	Relevance Score
G	UN Women (n.d)	Low	Medium
A	Urban Resource Centre (2001)	Low	Low
G	Utt, J. (2014)	Low	Low
G	Valladares, D. (2011)	Low	Medium
G	Van Deven, M. (2012)	Low	Medium
G	Venkatesan, J. (2013)	Low	Low
G	Verbruggen, Y. (2014)	Low	Medium
G	Verma, J. S., Seth, L., & Subramaniam, M. (2013)	Low	High
G	Villa, M., & Bates, L. (2014a)	Low	Med
G	Volinski, J., & Tucker, L. E. (2003)	Low	Low
G	Wallace, R.R., Rodriguez, D.A., White, C., Levine, J. (1999)	High	High
G	Warren, R. (2014)	Low	Medium
C	Welsh, B. C. & Farrington, D. P. (2008)	Medium	Medium
C	Wick, K. (December 12, 2014)	Low	High
C	Witness Confident (2014)	Low	Low
G	Witness confident. (n.d)	Low	High
G	WMTA (2014)	Low	Low
G	Women Transforming Cities (2014)	Low	Medium
G	Wyss, J. (2014)	Low	Medium
G	Yavuz, N., & Welch, E. W. (2010)	Medium	High
G	YouGov. (2012)	Low	Medium

<sup>45</sup> A=Academic; G=Google; R=Reference lists; C=Call for papers